THE BROOKLYN PAPYRUS (47.218.48 and 47.218.85) and ITS SNAKEBITE TREATMENTS

by

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Dedicated to the memories of

Serge Sauneron (1927–1976),

whose valuable work provided the stepping stone for this thesis;

and my father Ronald Francis Golding, M.C. (1922–2014).

DECLARATION

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I declare that the above thesis is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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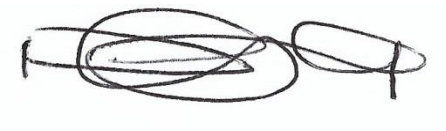
I further declare that I have not previously submitted this work, or part of it, for examination at UNISA for another qualification or at any other higher education institution.



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Wendy Rebecca Jennifer Golding

Dated 21st February 2020

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ABSTRACT

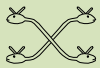
The *Brooklyn Papyrus* (47.218.48 and 47.218.85) is the handbook of the Priests of Serqet who were called upon to treat snakebite victims in ancient Egypt. The first part of the *Brooklyn Papyrus* describes various snakes encountered by the ancient Egyptians, and the effects of the bites of these snakes. The second part of the Papyrus contains the numerous treatments that were used to treat the snakebite victims.

The primary question of the thesis is to address how the ancient Egyptians treated snakebite victims; and if it is possible to identify the snakes that they encountered, as treatment often hinges on this identification. Additional questions are addressed, namely: What is the *Brooklyn Papyrus* exactly and what is its background? How does the *Brooklyn Papyrus* compare to the well-known ancient Egyptian medical papyri? How does the snakebite treatment of the ancient Egyptians compare to that of today's treatment protocol?

In order to answer these questions, this thesis provides my transliteration of the hieroglyphic writing into Latin script, and my translation into English, based on the hieratic to hieroglyphic transliteration done by Serge Sauneron in the late 1960s, and published in 1989 as *Un Traité Egyptien d'Ophiologie*. The primary aim of this thesis is to provide a transliteration and full English translation of the *Brooklyn Papyrus*, as none is currently available.

It is clear that from the translation that one can discover exactly how snakebite was treated in ancient Egypt: what medicinal ingredients were used and how the patient was treated. Furthermore, from the text describing the snakes and the effects of their bites, one can indeed attempt to identify the species of snakes. It is also apparent from the *Brooklyn Papyrus* that the ancient Egyptians did recognise and accurately describe many effects of snakebite on the human body, as well as the different types of bite wounds: and they also understood the importance of being able to identify a species of snake as it very often impacted on the treatment to be prescribed—exactly as snakebite treatment is considered in medicine today.

KEY WORDS and TERMS



Brooklyn Papyrus, Brooklyn Papyrus translation, medical papyrus, medical papyri, ancient Egypt, snakes, ancient Egyptian snakes, snakebite, snakebite treatment, snakebite treatment in ancient Egypt, Serqet, Priest of Serqet, Controller of Serqet, kherep serqet, medicinal ingredients, medicinal ingredients in ancient Egypt, ancient Egyptian medicine, Serge Sauneron, Charles Edwin Wilbour, Brooklyn Museum.

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DEFINITIONS OF TERMS

anhelmintic	a substance that destroys or expels parasitic worms.[3]
anticoagulant	a substance that interferes with clotting of the blood (it thins the blood).[1]
antihaemorrhagic	a substance that prevents or stops bleeding.[1]
antihypertensive	a substance that helps to reduce high blood pressure.[3]
anti-inflammatory	a substance that counteracts inflammation.[3]
asphyxia	a state of unconsciousness that may result in death, caused by either a lack of oxygen or an excess of carbon-dioxide in the body.[3]
astringent	a substance that causes the soft organic tissues to tighten.[3]
atractaspid	a family of snakes which includes burrowing snakes.[2]
carminative	a substance that aids in the expulsion of gas from the stomach or intestines to relieve abdominal discomfort.[3]
coagulant	a substance that promotes thickening of a liquid to form a clot.[3]
coagulopathy	the blood's inability to coagulate (clot) caused by disease or a condition.[1]
colubrid	the largest family of snakes which includes water and tree snakes.[2]
cytotoxic venom	a venom which destroys the tissues of the body.[2]
demulcent	a substance (such as mucilage) that soothes abraded mucous membranes.[3]
diplopia	a disorder of sight resulting in double vision.[3]
diuretic	a substance that increases the expulsion of urine.[3]
dysphagia	difficulty in swallowing.[3]

[1] www.merriam-webster.com/medical (accessed online 2nd January 2020).
[2] Alexander & Marais, *A guide to the reptiles of Southern Africa* (2007); Marais, *Snakes and snakebite in Southern Africa* (2014).
[3] www.merriam-webster.com/dictionary (accessed online 2nd January 2020).

dysphonia	difficulty in speaking or using the voice.[3]
ecchymosis	an escape of blood into surrounding tissues[3], can cause skin discolouration.
elapid	a family of snakes which includes cobras and mambas.[2]
emetic	a substance that causes vomiting.[3]
envenomation	the act of poisoning by venom (of a snake or spider).[3]
envenomed bite	a bite that results in poisoning
ethnomedicine	medical practices and beliefs of indigenous cultures.[3]
expectorant	a substance that encourages the expulsion of mucous from the respiratory tract.[3]
extravasation	the process of blood passing from the vessel into surrounding tissue.[3]
exudate	a substance that oozes[3] (for example: sap from a tree).
haemotoxic	a venom which affects the vascular (blood) system of the body.[2]
homogenous	of a uniform composition throughout.[3]
ischaemia	a deficiency in blood flow to a body part caused by a blockage of an artery.[3]
keeled scales	a scale which has a ridge on it, often found on adders.[2]
myolysis	a destruction or breakdown of muscle tissue.[1]
necrosis	death of living tissue.[3]
neurotoxic venom	a venom which attacks the nervous system of the body, resulting in paralysis.[2]
myotoxic venom	a venom which results in muscular paralysis.[2]
oedema	abnormal collection of excess serous fluid in a serous cavity or connective tissue (resulting in a swelling).[1]
oligaemia	a reduction of the body's total blood volume.[3] It may result in oligaemic shock and cause death.
phytochemical	a chemical compound which occurs naturally in plants.[3]

procoagulant	a substance which promotes the coagulating of the blood.[1]
ptosis	a drooping or sagging of an organ or part of an organ, especially of the upper eyelid.[3]
purgative	a substance that causes evacuation from the bowels.[3]
thrombosis	the formation or presence of a blot clot in a blood vessel.[3]
unguent	a healing or soothing ointment.[3]
viperid	a family of snakes which includes vipers and adders.[2]

PREFACE

While working on my Master's degree in Ancient Near Eastern Studies (*Perceptions of the serpent in the ancient Near East: its Bronze Age role in apotropaic magic, protection and healing*), I began to wonder how snakebite victims in the ancient Near East were treated. I found that information on this subject was hard to come by. Questions began to form in my mind, such as: How was the patient handled? How was a bite wound treated? What was done in the case of an envenomed bite? Did patients survive? Did the ancient people recognise bite symptoms? Did they link certain types of snake with certain types of reactions in the bite victim? Did they know which snakes were dangerous?

I then came across Nunn's book, *Ancient Egyptian medicine* (2002), in which some pages were dedicated to a discussion on snakebite. It was here that I first learned of the *Brooklyn Papyrus* (47.218.48 and 47.218.85)[4] which was written in the ancient Egyptian language in hieratic. I searched for a complete translation of the Papyrus and found that the only full translation of it existed in French in Serge Sauneron's *Un traité Egyptien d'ophiologie* (1989), published posthumously. Sauneron, a director of the *Institut Français d'Archéologie Orientale du Caire*, worked on translating the hieratic Papyrus from the ancient Egyptian language, via hieroglyphics, into French. This was done primarily from 1966 to 1968 while on visits to the Brooklyn Museum to study other various papyri. Sauneron's book is the result of his work on the *Brooklyn Papyrus*.

I eventually managed to find and order a copy of Sauneron's book and a short while later it was dispatched from a bookshop in Alaska and duly arrived in Cape Town! I immediately set about getting my extremely limited French up to a reasonable standard in order to understand Sauneron's commentary, and also to be able to access other research material, much of which exists in French – especially material on botanical subjects of ancient Egypt. I found the hieroglyphs increasingly fascinating and so set about studying Middle Egyptian in order to unlock the information for myself. What intrigues me about the *Brooklyn Papyrus* is that an

[4] Reference to the '*Brooklyn Papyrus*' in this thesis means the papyri catalogued in the Brooklyn Museum under the numbers 47.218.48 and 47.218.85.

entire document is dedicated to the identification of snakes in ancient Egypt and the treatment of their bites. This got me excited at the prospect of being able to discover exactly how people in the ancient Egypt treated snakebite victims, and that I may be able to find answers to the questions I had been asking.

Having obtained my much sought after copy of *Un traité Egyptien d'ophiologie*, I immediately wanted to know how the ancient Egyptians approached snakebite treatment. This became my motivation for studying the Egyptian language and after a year I got to a point where I could start to attempt to transliterate Sauneron's hieroglyphs[5] and translate the information into English.

I managed to establish, through communication with the Brooklyn Museum and the *Institut Français d'Archéologie Orientale du Caire* (which published Sauneron's *Un traité Egyptien d'ophiologie*), that there was no English translation of Sauneron's book or any published English translation of the Papyrus, and no transliteration from hieroglyphics into Latin script is included in Sauneron's book. In addition to wanting to find out about the ancient Egyptian approach to snakebite treatment, I developed a desire to learn more about the Papyrus itself – its discovery, its possible age, and the people involved with it.

[5] Sauneron transliterated the hieratic script of the Papyrus into hieroglyphics.

CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

The *Brooklyn Papyrus*, the exact provenance of which is unknown, is essentially the handbook of the Priests of Serqet[6] who were called upon to treat snakebite victims. According to the *Annual Egyptological Bibliography 1967* (Jansen 1972:144), the Papyrus came to the Brooklyn Museum in 1947 and is described as the manual of a snake charmer. It had been obtained in Egypt by Charles Edwin Wilbour. When he died in Paris, this Papyrus was among his possessions, many of which, including the *Brooklyn Papyrus*, were donated by members of his family to the Brooklyn Museum. The Papyrus, which is in two parts (47.218.48 and 47.218.85), resides in New York's Brooklyn Museum, and is not on display. It is a copy which probably dates to the Late Period (664–332 BCE)[7] and is thought to be based on an earlier original.

The first section of the Papyrus is dedicated to a description of the various snake species (and one chameleon), the effects of their bites and likely outcome. The second part of the Papyrus lists numerous prescriptions for the treatment of snakebite.

1.2 RESEARCH PROBLEM AND RESEARCH QUESTIONS

1.2.1 Primary question

What did the ancient Egyptians understand about snakes, venom and treatment of snakebite?
I found that there was very little information available to be able to answer this question in a comprehensive manner. Indeed, Nunn (2002:183–189) does discuss snakebite but only two pages contain a few examples from the *Brooklyn Papyrus* (Nunn 2002:188–189). Reading

[6] Serqet (or Selkis, Selqet) is the Egyptian goddess of snakes and scorpions (Ritner 2003a:195).
[7] Sasson (2006:vi).

these examples about the ingredients that were used in treatments lead me to ask related questions.

1.2.2 Additional questions

Exactly what is the *Brooklyn Papyrus*? What is its context, its history and where does it come from? How does the *Brooklyn Papyrus* compare with the well-known medical papyri? Is the *Brooklyn Papyrus* the definitive document for ancient Egyptian snakebite treatment?

What species of snakes did the ancient Egyptians encounter? How many treatments were there in the *Brooklyn Papyrus*, what ingredients did the ancient Egyptians use and how did they prepare them? How did they actually treat the victims and how did they utilise these ingredients? How did they know what to use and what were the reasons for the choice of ingredients and treatments? Did Sauneron manage to identify all the ingredients? Most of all, did any of these treatments (as bizarre as some of them may appear) work? How do we know whether they produced a positive outcome? Were any of the ingredients used in the treatment regime able to control infection and inflammation or ease pain and suffering?

For an entire Papyrus to be devoted to snakebite treatment and used as a handbook for consultation, some of the treatments it contained must have had some positive effect and could possibly have produced the desired result. Granted, there are some extraordinary ingredients listed among those in the recipes but there are also those, particularly of plant and mineral origin, which may warrant consideration.

1.3 AIM AND OBJECTIVES OF THE STUDY

1.3.1 Primary aim

The primary aim of this thesis is to provide a transliteration and English translation of the *Brooklyn Papyrus* in order to investigate the ability of the ancient Egyptians to identify and understand various types of snakes, venom and its ability to cause harm and even death, and their manner of snakebite treatment as provided by the treatment prescriptions in the *Brooklyn Papyrus*. This incorporates discovering what ingredients were used in their treatments and what methods of treatment they followed.

1.3.2 Additional objectives

The additional objectives of this thesis will include investigating the background to the *Brooklyn Papyrus* and placing it in context, and discovering how it fits in with the other known medical papyri; attempting to identify the snakes described in the *Brooklyn Papyrus* from the ancient Egyptian descriptions; attempting to provide identifications for some of the treatment ingredients that Sauneron may not have managed to identify in the late 1960s; investigating the treatment procedures and the choice of recipe ingredients; and determining whether the *Brooklyn Papyrus* is the best source of information for understanding snakebite treatment in ancient Egypt.

1.4 HYPOTHESIS

A qualitative study with a multidisciplinary approach incorporating literature, history, mythology, archaeology, medicine and biology (botany and herpetology) might illuminate our understanding how treatment of snakebite was approached in ancient Egypt, and what the ancient Egyptians understood about snakes and venom.

1.5 LITERATURE REVIEW AND SOURCES[8]

1.5.1 Sources

The most important source for this thesis is the hieroglyphic text in *Un traité Égyptien d'ophiologie* (1989), which is Serge Sauneron's transliteration of the *Brooklyn Papyrus* from hieratic.

The commentary in Sauneron's notes in *Un traité Égyptien d'ophiologie* (1989) provides a valuable source of information. This book also contains some information in the introduction on the restoration of the *Brooklyn Papyrus*, its lost first part, the condition of the Papyrus and its writing. Additional useful sources of information about the Papyrus itself are accessed in Jansen, *Annual Egyptological bibliography 1967* (1972), and Sauneron's articles 'Some newly unrolled Hieratic papyri in the Wilbour Collection of the Brooklyn Museum' and 'The

[8] There are several publications that I feel would be of value for this thesis but that I was unable to obtain. In particular, it would have been useful to consult: *L'univers mineral dans las pensée égyptienne* (Aufrère 1991), the four volumes of *Encyclopédie religieuse de l'univers vegetal* (Aufrère 1999–2005), *Médecins et magiciens à la cour du pharaon: une étude du papyrus méical Louvre E 32847* (Bardinet 2018), and *Lexikon der äegyptischen Götter und Götterbezeichnungen* (Leitz 2002–2003).

Wilbour papyri in Brooklyn: a progress report', both of which appear in the *Brooklyn Museum annual,* volumes VIII and X (1968 and 1969 respectively).

Additional sources which are useful for this thesis are Lalanne & Métra's *Nouvelle transcription du papyrus medical Ebers: avec translitération, traduction, glossaire et index* (2017), and Faulkner's *The ancient Egyptian pyramid texts* (1969). Both these works provide good sources that one can refer to for comparison with the *Brooklyn Papyrus*. Although there are other works on the *Ebers Papyrus*, this publication, by Lalanne & Métra is recent and would have taken previous scholars' work into account. The *Ebers Papyrus* is an extensive compilation of medical treatments which is why it has been selected as a point of referral for this thesis, and it provides an up-to-date source of translations for medicinal ingredients.

It is important to know about the people at the forefront of treating snakebite in ancient Egypt. There are a few really useful sources in this regard, from which information on the *kherep Serqet* – the Priests, or Controllers, of Serqet – can be obtained. Especially important is the study by Von Känel (1984) on the inscriptions in which the name '*kherep Serqet*' appears: *Les prêtres-ouâb de Sekhmet et les conjurateurs des Serket*. The following articles have also been consulted: Aufrere (2013), *Serpents, magie et hieroglyphs*, and Tallet (2011), *Conjurateurs de Serqet et repousseurs de scorpions au Sinaï à la fin de XII^{e} dynastie*.

The *Pyramid Texts*, which are the subject of ongoing studies (Allen 2005b:2), contain spells for warding off snakes, and therefore provide a source of refence when examining incantations and any magical content in the *Brooklyn Papyrus* treatments. The *Pyramid Texts* themselves suggest that they were in use before the Fifth and Sixth Dynasties (Allen 2005b:4), and Allen (2005b:4) says that although the *Pyramid Texts* were first attested in the pyramid of Unas[9], they are probably older.

In investigating the question of the uniqueness of the *Brooklyn Papyrus* one must take descriptions of the other medical papyri into account, namely the *Edwin Smith Papyrus*, the *Ebers Papyrus*, the *Kahun Papyri*, the *Hearst Papyrus*, the *Berlin Medical Papyrus*, the *Chester Beatty Medical Papyri*, the *London Medical Papyrus*, and the *Erman document* – all of which are discussed in Leake (1952). Nunn (2002) also discusses these papyri and adds a

[9] Unas (2375–2345) was the last king of the Fifth Dynasty. The iternal walls of his pyramid contain inscriptions which make up the *Pyramid Texts* (Shaw & Nicholason 2002:299).

few more to the list, namely the *Papyrus Carlsburg VIII*, the *Ramesseum Papyri*, the *Leiden Papyrus* and the *Crocodilopolis Papyrus*. In addition, the *Metternich Stele* and the *Cippi of Horus* also provide useful information.

Descriptions of the major medical papyri are found in Leake's *The old Egyptian medical papyri* (1952) and Nunn's *Ancient Egyptian medicine* (2002). Nunn's book provides information on the additional medical papyri that are not included in Leake's work, as they were not available when his work was published in 1952. These two sources are useful for establishing where the *Brooklyn Papyrus* stands amongst its peers. Goyon's (2012) *Le recueil de prophylaxie contre les agressions des animaux venimeux du Musée de Brooklyn* is also useful for comparison with the *Brooklyn Papyrus*.

Various books on medicine in ancient Egypt are available, such as Nunn's *Ancient Egyptian medicine* (2002) mentioned above, Halioua and Ziskind's *Medicine in the days of the pharaohs* (2005), Reeves' *Egyptian medicine* (2001), Estes's *The medical skills of ancient Egypt* (2004), Ghalioungui's *The house of life* (1973), and Veiga, *Health and medicine in ancient Egypt* (2009). Even though such literature does mention snakebite treatment, there is nothing in detail and nothing extensive, with the exception of Nunn's work which dedicates a few pages to the subject. For information particular to ancient Egyptian medical texts, none surpasses the volumes of Von Deines, Westendorf and Grapow (nine volumes published between 1954 and 1973)[10]: *Grundriss der Medizin der alten Ägypter*.

Sources of information available regarding snake venom, modern-day snakebite treatment protocols and first aid that are useful for gaining a basic understanding and overview are: Alexander & Marais, *A guide to the reptiles of Southern Africa* (2007); Marais, *Snakes and snakebite in Southern Africa* (2014); White's article 'Overview of snake envenoming' in *Critical care toxicology: diagnosis and management on the critically poisoned patient* (2005); Visser & Chapman, *Snakes and snakebite* (1978); O'Shea, *Venomous snakes of the world* (2011); Muller *et al*, 'Snake bite in southern Africa: diagnosis and management', in *CME*[11] (2012).

[10] Consult Nunn (2002:31) for exact publication dates and authors of each of the nine volumes.
[11] Continuing Medical Education, vol. 30, no. 10 (2012)
https://www.cmej.org.za/index.php/cmej/article/view/2546/2581 (accessed 8th January 2020).

When considering the possible identifications of the snakes described in the *Brooklyn Papyrus*, one cannot ignore the opinion of Brix (2012) in *Étude de la faune ophidienne de l'Égypte ancienne. Tome II: les monographies ophidiennes*. Aufrère's (2012) article *Symptomatologie des morsures d'ophidiens d'après le papyrus Brooklyn n^{os} 47.218.48 et 85: aspects éistémologiques d'un texte égyptien ancient recopié au IV^{e} siècle avant notre ère*, in *Anthrpozoologica* has been used to add and compare the opinion of other scholars regarding the possible identifications of the *Brooklyn Papyrus* snakes, as has the work of Sauneron (1989) and Nunn (2002), both mentioned above. Valuable sources of information, descriptions and photographs of snakes abound in works by well-known herpetologists and zoologists. In addition to Alexander & Marais (2007), Marais (2014), O'Shea (2011) and Visser & Chapman (1978) mentioned above, the following have been consulted for this thesis: Branch, *Snakes, other reptiles and amphibians of East Africa* (2014); Chippaux, *Les serpents d'Afrique Occidentale et Centrale* (2006); El Din, *A guide to the reptiles and amphibians of Egypt* (2006); Mattison, *The New encyclopedia of snakes* (2007); Shupe, *Venomous snakes of the world*: *a manual for use by U.S. Amphibious Forces* (2013); Spawls & Branch, *The dangerous snakes of Africa* (1995); and Joger, *The Venomous snakes of the Near and Middle East* (1984).

Many sources of information are handy in a study of ingredients used in ancient Egypt for medicinal purposes, apart from Lalanne & Métra (2017). Although many medicinal ingredients remain unidentified in general, some have been positively identified and the identity of others has been narrowed down to a couple of possibilities, caught up in the debates between scholars, since Sauneron worked on the *Brooklyn Papyrus* in the 1960.

For a study of ancient Egyptian medicinal ingredients, helpful sources include (but are not limited to) the following: Harris, *Lexicographical studies in Ancient Egyptian minerals* (1969) which provides useful information for identifying substances of mineral origin.

The two-volume work *Food: the gift of Osiris* (1977) by Darby *et al* is a mine of information for all types of food products used in the ancient Egyptian daily diet, many of which were also used medicinally. No discussion on plants in ancient Egypt would be complete without Manniche, *An ancient Egyptian herbal* (1989) and Baum, *Arbres et arbustes de l'Egypte ancienne* (1988), or the much earlier work of Loret, *La flore pharonique* (1892).

One cannot investigate botanical matters without consulting the various articles by Dawson: 'Egyptian medicine under the Copts in the early centuries of the Christian era' (1924), 'Studies in Egyptian medical texts: III' (1934), and 'Studies in Egyptian medical texts: V' (1935); and by Aufrère: 'Études de lexicologie et d'histoire naturelle, III' (1983), 'Études de lexicologie et d'histoire naturelle, VIII–XVII' (1986), and 'Études de lexicologie et d'histoire naturelle, XVIII–XXVI' (1987). Both Loret and Dawson appreciate the value of the Coptic medical documents and the continued medical traditions that passed from the ancient Egyptians to the Copts. Coptic-Arabic lexicons that appeared with the spread of the Arab people have greatly assisted in enabling scholars to identify numerous ingredients in ancient Egyptian treatments (Dawson 1924:52).

Reliable resources for topics concerning ancient Egyptian deities and mythology for this thesis are Redford's *The essential guide to Egyptian mythology* (2003); Hart's *The Routledge dictionary of gods and goddesses* (2005); Pinch's *Handbook of Egyptian mythology* (2002) and *Magic in ancient Egypt* (2006); Shaw & Nicholson's *The British Museum dictionary of ancient Egypt* (2002), Shaw's *Exploring ancient Egypt* (2003), and Wilkinson's *The complete gods and goddesses of ancient Egypt* (2003).

The book consulted most in this study for grammar is Allen's *Middle Egyptian: an introduction to the language and culture of hieroglyphics* (2005a). Gardiner's *Egyptian grammar, being an introduction to the study of hieroglyphics* (1957) was used, especially for Gardiner's sign list. In addition, Černý, Israelit-Groll & Eyre's *A late Egyptian grammar* (1993) was useful. The dictionaries used in this thesis for the Egyptian language are the valuable Erman & Grapow's *Wörterbuch der Aegyptischen Sprache*, volumes 1–5 (1926, 1928, 1929, 1930 and 1931 respectively); Hannig's *Die sprache der pharaonen: großes handwörterbuch Ägyptisch-Deutsch (2800–950 v. Chr.)* (2006); Faulkner's *A concise dictionary of Middle Egyptian* (1986); Von Deines & Grapow's *Wörterbuch der Ägyptischen drogennamen* (1959); Von Deines & Westendorf's *Wörterbuch der medizinischen texte VII: erste Halfte* (1961) and *Wörterbuch der medizinischen texte VII: zweite Halfte* (1962). Of use for translations from German into English are the Collins *Paperback German dictionary* (1995), and the online version, https://www.collinsdictionary.com/dictionary/english-german, and Merriam-Webster's *French-English dictionary* (2005), as well as the online source https://www.merriam-webster.com.

1.4.2 Additional literature

Current research is being carried out on the curative properties and medicinal benefits of plant species in relation to snakebite treatment. Some of these species are listed as ingredients in the *Brooklyn Papyrus*, for example: *Capparis decidua*[12], *Moringa pterigosperma*, *Moringa aptera*[13], *Pistacia terebintha*[14], and *Commiphora myrrha*[15]. Numerous articles are available in books as well as in medical and scientific journals concerning research and information available on botanical species used for medicinal purposes in general – and in particular, on current investigations into botanical species and folkloric medicines traditionally used in snakebite treatment in rural communities across the world. Some of these articles discuss potential herbal or plant-based treatment for the venom of specific snakes. Others discuss the potential of specific plant extracts to neutralise venom or be used in conjunction with conventional treatment. Owing to the volume of literature in this field, only a few examples are outlined below.

In their article 'Herbs and herbal constituents active against snakebite', Gomes *et al* (2010:874) say that antivenom serums have known limitations (such as cost, product stability, adverse patient reaction, accessibility) and that alternative treatments are being sought, especially within the realm of herbal remedies which are less expensive, more stable and more readily available. Furthermore, Gomes *et al* (2010:874) relay that, according to the World Health Organisation, 80% of the global population relies on herbal medicine as a first port of call for healthcare.

In their article, 'Do herbal medicines have potential for managing snake bite envenomation?' Gupta and Peshin (2012) discuss the importance of investigating plant remedies for snakebite treatment. Their reasons for the importance of these scientific investigations concur with those given by Owour and Kisangu (2006) in their article 'Kenyan Medicinal Plants used as antivenin: a comparison of plant usage'. Several articles along similar lines discuss the investigation of certain plant species that contain phytochemicals, which react with venom proteins and seem to decrease, inhibit or neutralise their effect. For example, Gupta and Peshin (2012) mention a number of examples of plants being used to help treat snakebite that exhibit antitoxin, anti-inflammatory, antihaemorrhagic and anticoagulant properties. In

[12] One of the caper bushes, also known as *khair* in the Middle East.
[13] The oil of Ben derives from the Moringa nut.
[14] Terebinth.
[15] Myrrh.

addition, certain plants with antibacterial properties and some that show antimyotic and antivenin activities are being studied to ascertain their effectiveness in snakebite treatments.

Numerous studies are being done in India on plant-based treatments for snakebite, and just one example is the recent study done by Upasani *et al* and discussed in their article 'Ethnomedicinal plants used for snakebite in India' (2017), revealing the results of an investigation into which plants in India are traditionally used to treat snakebite. The study shows that 523 plant species are used on their own or with other antidotes, and the authors recognise that people use easily available folkloric and herbal medicines to treat snakebite. The article specifies the plant parts used, methods of preparation and administration (oral, paste, decoction, and so forth). Africa, too, is investigating these traditional folkloric and plant-based treatments. Owour and Kisangu (2006) are not alone in their quest and many examples of alternative treatments for snakebite in Africa can be found. Yirgu & Chippaux have a very recent study focussing on Ethiopia. Their article 'Ethnomedicinal plants used for snakebite treatments in Ethiopia' (2019) discusses their study of traditional medicinal plants used in rural communities for snakebite in Ethiopia – a country which the authors say has long used traditional medicinal plants to treat ailments. Their study lists the plants used, specifying the plant parts and methods of use. The aim of their study is to identify those plants which could assist with the treatment of snakebite in rural health centres.

In light of these recent studies it will be of interest to see what was used in ancient Egypt to treat snakebite, particularly the botanical ingredients in treatments because plants appear to be topical and highly important in current scientific research into alternative snakebite treatment.

1.6 METHODOLOGICAL CONSIDERATIONS

1.6.1 Research design and approach

1.6.1.1 Approach

This study is an empirical[16] one because it is based on the observations made by the ancient Egyptians. The information that will be analysed in this study is, therefore, what has been

[16] For a definition of 'empirical' see *Oxford advanced learner's dictionary* (2015:489).

experienced by the ancient Egyptians rather than what is based on scientific evidence. As a result, this thesis will employ a qualitative research method[17] because the outcomes of the observations of the ancient Egyptians are not quantifiable. I will apply my interpretations of available data and will use this data to build my thesis.

The primary data (i.e. the information contained in the *Brooklyn Papyrus*) is historical in nature. It contains the ancient Egyptian observations of snakes and the effects of their bites, as well as treatment procedures to be followed in the event of a bite. The qualitative research is based on my translation of this primary data and consequently my interpretation thereof. This data will be used to create a possible picture to answer the problem statement. The outcomes of the snakebite treatments are not quantifiable and therefore my interpretation must be applied.

A multidisciplinary approach[18] will be applied in this study, which will rely largely on language skills applied to the main source. Other disciplines include, but are not limited to, history, archaeology, biology (herpetology, botany), mythology and medicine, which will all play a role in determining and interpreting how ancient Egyptians observed snakes, and the results of their bites, and provided treatment for the victim.

1.6.1.2 Transliteration and translation

The first step is to be able to access the information contained in the *Brooklyn Papyrus*. In order to do this, I am basing my transliteration of hieroglyphics into Latin (or Roman) script on Sauneron's transliteration of the hieratic script into hieroglyphics. The second step is to translate the information into English.

1.6.1.3 Notes and commentary

It is important to provide commentary on the translation, either to bring attention to interpretations or to highlight certain information revealed in the translation process. It is also

[17] For a definition of 'qualitative' see Oxford advanced learner's dictionary (2015:1217); and Crossman, A., *An overview of qualitative research methods*, ThoughtCo, Oct 2019, thoughtco.com/qualitative- research-methods-3026555 (accessed online 27th December 2019).

[18] A multidisciplinary approach is one that uses or combines several different types of disciplines in order to reach an outcome. https://www.merriam-webster.com/dictionary/multidisciplinary (accessed online 8th January 2020).

important to compare my notes to those of Sauneron, as there may be advances in information or differences of opinion.

1.6.1.4 Information tables

I have devised several tables into which data resulting from the translation can be placed. This assists with the ability to analyse patterns in the information and also with answering numerous questions, such as: 'How many dangerous snakes were identified by the ancient Egyptians?', 'What is the most frequently used medicinal ingredient?', 'How many medicinal ingredients remain unidentified?', or 'What is the most frequent method of treatment?'

The first four tables that appear in this thesis list the snakes described in the *Brooklyn Papyrus.* These tables indicate the snakes in the viperid, elapid, colubrid and atractaspid groups respectively. Table 6 illustrates the relationship between a snake's name and its description.

Tables 8 to 12 illustrate the medicinal products of botanical, animal and mineral origin, as well as carrier liquids and the ingredients of unknown type. These products are listed alphabetically according to the ancient Egyptian alphabet and indicate the paragraphs in which they appear. One will be able to see from these tables the frequency with which the various medicinal ingredients occur, with the additional advantage of being able to view them as part of a pharmacopoeia, instead of spread out across approximately 140 treatment recipes. The state of the ingredients will also be specified in the tables, for example: fresh, dried, ground finely, as well as the part or type used such as leaves, roots, curds, blood, and so forth.

In addition, Tables 15 to 18 are arranged according to treatment type, listing the ingestible treatments, emetics, wound and body treatments, and fumigations. One will be able to see from these tables the frequency with which certain ingredients appear in each category of treatment.

1.6.2 Structure of the thesis

Chapter Two – The Brooklyn Papyrus in context

This chapter is intended to provide a background to the *Brooklyn Papyrus* and place it in context of time and origin. The chapter will describe the Papyrus itself, its layout, and

introduce the reader to the people most associated with it. These include the original translator, Serge Sauneron; Charles Edwin Wilbour, whose family bequeathed the Papyrus to the Brooklyn Museum; and the Priests of Serqet in whose hands the snakebite victims were placed.

Chapter Three – The medical papyri versus the Brooklyn Papyrus

Chapter Three aims to establish whether the *Brooklyn Papyrus* is the most important document amongst the medical papyri for the treatment of snakebite. This chapter provides a context within which the *Brooklyn Papyrus* can be placed by discussing the known major medical papyri of ancient Egypt. This discussion provides a basis for a comparison between these papyri and the *Brooklyn Papyrus*.

Chapter Four – Snake venoms and modern-day treatment protocols

For any discussion on snakebite, it is important to understand venom and what it does to the human body. Without such understanding, one cannot begin to investigate snakebite treatment, ancient or modern, or comprehend the often severe and devastating effects on the human body. This chapter provides information on what venom is, its effects and modern-day snakebite treatment protocols, and is intended to provide insight into what the ancient Egyptians had to deal with. It will eventually enable a comparison between how snakebite is treated in today's world and how it was treated in Egypt a few thousand years ago.

Chapter Five – Text of the first part of the Brooklyn Papyrus: descriptions of the snakes and the effects of their bites.

The extant first part of the *Brooklyn Papyrus* is a description of 24 snakes (and one chameleon) and the effects of their bites. This chapter gives my transliteration into Latin script of Sauneron's hieroglyphic transliteration of the original hieratic script, followed by my translation and notes. Each paragraph is handled separately and follows the paragraph numbering used by Sauneron for the sake of consistency and ease of reference to Sauneron's commentary.

Chapter Six – The identity of the Brooklyn Papyrus snakes

I noted in Nunn's *Ancient Egyptian medicine* (2002:185–186) that attempts had been made to identify the snakes described in the first part of the *Brooklyn Papyrus*. The question that arose was whether it was really possible to identify the snakes based on the observations of the

ancient Egyptians. This chapter investigates this question based on the information revealed in the first part of the Papyrus.

Chapter Seven – Text of the second part of the Brooklyn Papyrus: recipes and treatments
This second part of the *Brooklyn Papyrus* is the treatment manual for snakebite. Once again, my transliteration into Latin script of Sauneron's hieroglyphic transliteration of the original hieratic script is given, followed by my translation and notes. Each paragraph is handled separately and follows the paragraph numbering used by Sauneron for the sake of consistency and ease of reference to Sauneron's commentary.

Chapter Eight – Medicinal ingredients and treatment methods
Chapter Eight will draw on the information that comes to light in the second part of the *Brooklyn Papyrus* and will be assembled in a way that enables comparison and discussion of the ancient Egyptian pharmacopoeia, including its ingredients of botanical, animal and mineral origins and its prescriptions which involve ingredient preparation, dosage and application. This assembling of information is achieved by inputting the data into tables which will facilitate consideration of the information.

Chapter Nine – Conclusion

1.7 LIMITATIONS AND DELIMITATIONS OF THE STUDY

1.7.1 Limitations of the study

The conclusion of this thesis is based on my translation and interpretation of the *Brooklyn Papyrus*. Certain words, particularly the names of medicinal ingredients in the snakebite treatments, are not able to be translated from the ancient Egyptian language because they have not yet been identified.

1.7.2 Delimitations of the study

This study is limited to the descriptions of snakes and snakebite treatments contained in the *Brooklyn Papyrus,* and therefore concerns ancient Egypt only. The study does not incorporate snakebite treatment of any other peoples of the ancient Near East.

1.8 SIGNIFICANCE OF THE STUDY

Firstly, if the primary aims and objectives are achieved, the significance of this study will provide comprehensive information on how snakebite victims were treated in ancient Egypt according to the *Brooklyn Papyrus*. This creates a basis for further studies in which treatment of snakebite and the ancient Egyptian capacity for observations of nature (i.e. identification of snake species and the effects of their bites) can be compared with other regions in the ancient Near East, or even across time periods or areas outside of the ancient Near East.

Secondly, there is currently no transliteration of the *Brooklyn Papyrus* hieroglyphics into Latin script in a published or accessible form. This study hopes to provide one.

Thirdly, this study will also be able to provide an English translation of the *Brooklyn Papyrus* which does not currently exist in a published or accessible form.

Fourthly, it is sincerely intended that this study may compliment and add to the work of Serge Sauneron and his original French translation of the *Brooklyn Papyrus*.

Fifthly, the variant spellings, abbreviated forms of words and unusual use of certain signs in Sauneron's hieroglyphic transliteration from the hieratic script that are characteristic of the *Brooklyn Papyrus* add to the known and accepted spellings of ancient Egyptian words currently in the dictionaries. Certain words may gain possible new or additional meanings based on the context in which they are used in the *Brooklyn Papyrus*.

Sixthly, in light of current scientific research into plant-based treatments for snakebite in countries such as India, and in Africa, where scientists are now investigating the treatments used by the people in remote rural areas, where the traditional healers are consulted, this study is topical.

CHAPTER TWO

THE *BROOKLYN PAPYRUS* IN CONTEXT

2.1 INTRODUCTION

It is important when working with a document to understand its context as far as possible. What is the origin of this Papyrus? Where does it fit in timewise? What is its history? Who are the people associated with it? What does it look like? The information extracted from the document becomes more valuable when its context is properly understood.

The *Brooklyn Papyrus* (47.218.48 and 47.218.85)[19] is a papyrus containing descriptions of various snakes and treatment recipes for snakebite victims. One could think of it as the handbook of the Priests of Serqet – a snake identification and treatment manual. These priests and their patron goddess are described below in 2.3.3, following a description of the *Brooklyn Papyrus* itself and its contents.

2.2 THE PAPYRUS

2.2.1 A description of the *Brooklyn Papyrus*

The *Brooklyn Papyrus* is currently located in the Brooklyn Museum, New York, and is not on display. It is catalogued under the numbers 47.218.48 and 47.218.85 because it exists in two separate pieces. The papyri were studied by Serge Sauneron in Brooklyn in 1966 and again in 1968, during which time he was able to establish that the two papyri were originally from one document. By careful study of the text, its content matter and the torn edges, Sauneron was able to make the top and bottom sections correspond (see Figure 1 below of pages 4 and 3 of the 11 page manuscript). He surmised that it was torn in two, either because whoever had found it thought that he / she could make more money from the sale of two separate pieces, or because there were two partners who each expected to receive a benefit from the sale (Sauneron 1989:ix).

[19] Wherever the *Brooklyn Papyrus* is mentioned in this thesis, it refers to the *Brooklyn Papyrus* residing in the Brooklyn Museum in New York, catalogued under numbers 47.218.48 and 47.218.85.

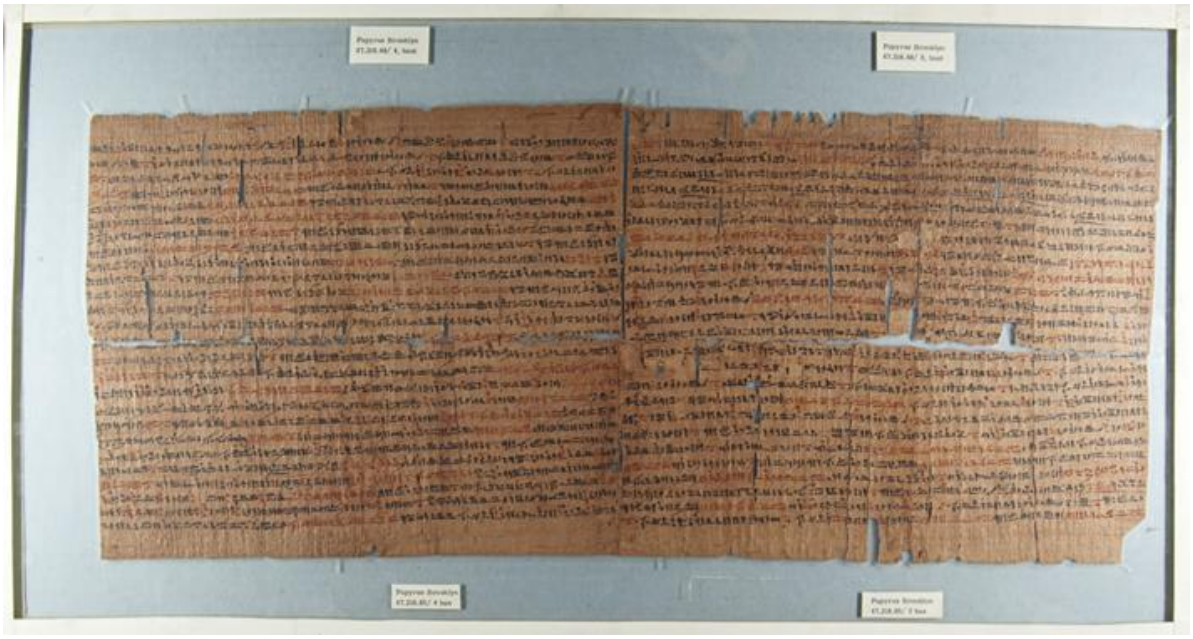

Figure 1: Upper and lower portions of pages 4 (left) and 3 (right) of the *Brooklyn Papyrus*[20]

Indeed, the dividing of a papyrus was not uncommon practice among the sellers of antiquities. Charles Edwin Wilbour, the American Egyptologist, when describing a funerary papyrus suggests: '…I think some introductory pages [*sic*] cut off; perhaps it has been divided between two finders' (Capart 1936:34). Figure 2 (below) illustrates how Sauneron was able to make the upper and lower pages correspond. This picture is a close-up of part of page 4, showing the bottom part of the top half (47.218.48) and the top part of the lower half (47.218.85). One can see the tear across the page rendering it into two separate papyri but it is clear that both pieces are from the same document.

Figure 2: Upper and lower parts of page 4 of the *Brooklyn Papyrus*[21]

[20] Photograph: Courtesy of the Brooklyn Museum. *Snakebite Papyrus.* Provenance not known. Late Period, 664–332 BCE. Papyrus, ink. 47.218.48 a–f and 47.218.85 a–f, bequest of Theodora Wilbour, from the collection of her father, Charles Edwin Wilbour.

[21] Photograph: Courtesy of the Brooklyn Museum. *Snakebite Papyrus*. Provenance not known. Late Period, 664–332 BCE. Papyrus, ink. 47.218.48 a–f and 47.218.85 a–f, bequest of Theodora Wilbour, from the collection of her father, Charles Edwin Wilbour.

The pages of the Papyrus have an approximate height of 27 cm (Sauneron 1989:ix). The upper fragments have an approximate length of 147 cm and the lower fragments an approximate length of 175 cm. The fact that the upper fragments have a shorter length can be accounted for by the disintegration of a part of the Papyrus. The picture below (Figure 3) of page 6 of the Papyrus clearly shows the upper (47.218.48) and lower (47.218.85) halves. The tape measure gives one a good indication of the actual size of the Papyrus. On the left-hand side, line numbers have been written to indicate every fifth line.

Figure 3: Page 6 of the *Brooklyn Papyrus*[22]

From Sauneron's study of the Papyrus he established that it comprised 11 pages, each approximately 16 cm wide, joined together laterally. According to Sauneron's (Sauneron 1989:ix) description, the lower portion is in a better state of preservation than the upper portion. Text only appears on the recto side, the ink being a greyish black and a red. One page of writing occupies two sheets of paper. See schematic diagram below (Figure 4).

[22] Photograph: Courtesy of the Brooklyn Museum. *Snakebite Papyrus*. Provenance not known. Late Period, 664–332 BCE. Papyrus, ink. 47.218.48 a–f and 47.218.85 a–f, bequest of Theodora Wilbour, from the collection of her father, Charles Edwin Wilbour.

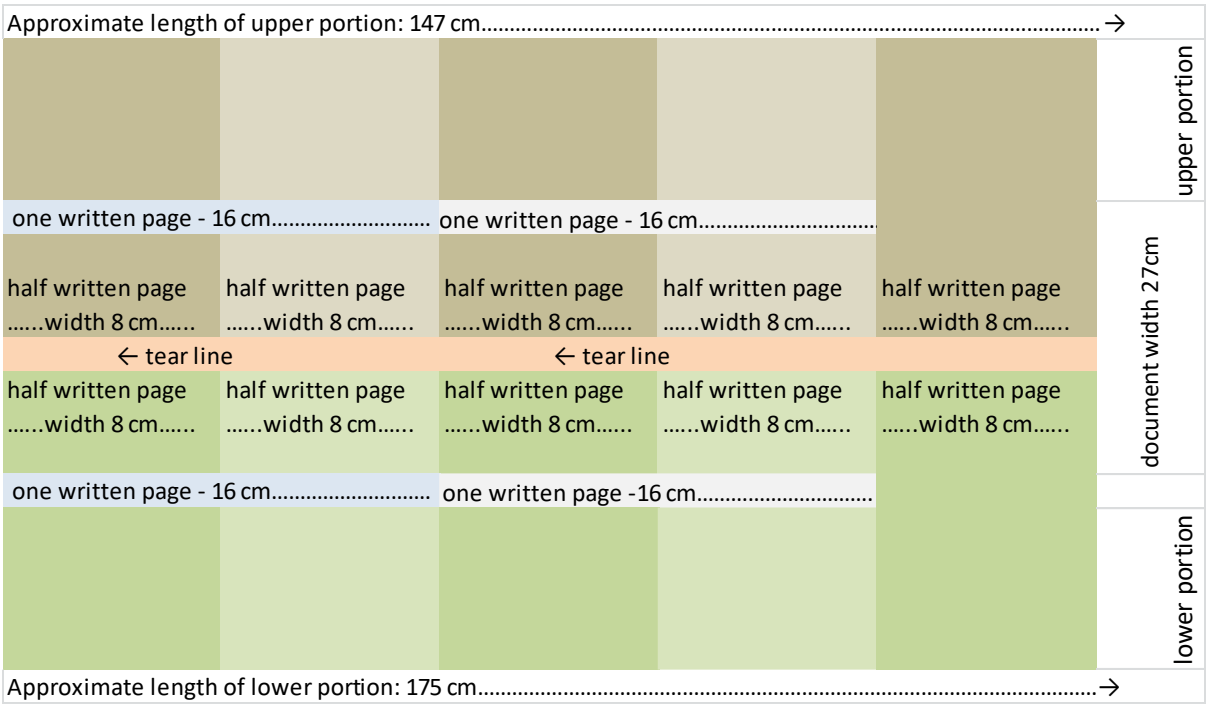

Figure 4: Schematic diagram of the *Brooklyn Papyrus* (47.218.48 and 85)[23]

The beginning portion of the Papyrus is lost, and almost all of the upper part of the first page is absent, no doubt owing to disintegration of the Papyrus. It was possible to preserve approximately one fifth of the upper portion of this page. The photograph below (Figure 5) shows the upper and lower portions of pages 1 and 2 of the Papyrus where one can clearly see the fragmentary nature of the upper portion of the first page. The red ink in the illustration below marks the start of each paragraph.

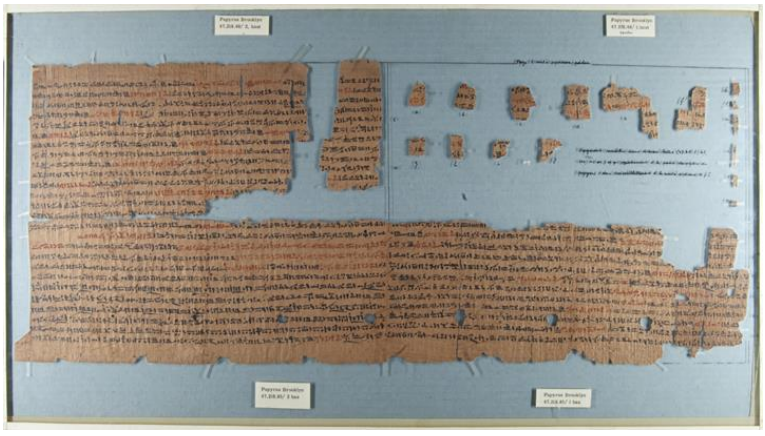

Figure 5: Pages 1 and 2 of the Brooklyn Papyrus[24]

[23] Diagram by Wendy Golding (2019).
[24] Photograph: Courtesy of the Brooklyn Museum. *Snakebite Papyrus*. Provenance not known. Late Period, 664–332 BCE. Papyrus, ink. 47.218.48 a–f and 47.218.85 a–f, bequest of Theodora Wilbour, from the collection of her father, Charles Edwin Wilbour.

2.2.2 The subject matter of the *Brooklyn Papyrus*

The subject matter of the *Brooklyn Papyrus* can clearly be divided into two. At the end of 2[16] (page 2, line 16) it reads *dmḏ ḫf*(*ɜw*)(*w*) *m wpt dmt*(*w*) – *šfdw 38* (in total: 38 chapters of snakes and description of the bites).

The second section of the Papyrus, being paragraphs 39–100, starts with the line *ḥɜt-ʿ m dmḏt* (beginning of the collection of recipes [treatments]). This section contains treatments, procedures and recipes pertaining to the treatment of victims bitten by the snakes described in paragraphs 14–38. It is possible to add names of snakes to the list that are missing due to the absent paragraphs 1–13, as there are references to these snakes in the treatment chapters. Sauneron was able to restore 9 of the missing names of snakes in this manner, reducing the number to 4 unknown snakes out of a list of 38 names.

It must be explained here that a 'chapter' in the Papyrus is not what we would necessarily understand as a chapter, consisting of many pages, but is rather several lines on a specific item, more like a paragraph. Each chapter, or paragraph, in the first section starts with the line 'Regarding the snake […] it is …'. There are 24 complete chapters, or paragraphs, in the first section, numbers 14–38. Therefore, the initial 13 paragraphs, are, sadly, contained in the lost first portion of the Papyrus.

2.2.3 Dating of the *Brooklyn Papyrus*

The *Brooklyn Papyrus* is written in hieratic script and seems to be a copy based on an older original. This copy dates to the Late Period (664–332 BCE)[25] although a precise date, says Sauneron (1989:xi), is difficult to establish owing to lack of other elements against which to compare it. The greatest number of similarities between the *Brooklyn Papyrus* and other documents is noted by Sauneron (1989:ix) to exist with three papyri listed by Möller: the *Leinwand* (Thirthieth Dynasty), the *Bremner-Rhind Papyrus* (320 BCE) and the *Berlin Papyrus 3008* (Lamentations of Isis and Nephthys) which dates to the second century BCE. Sauneron (1989:xi) thinks that the Papyrus dates to the Thirtieth Dynasty at the end of the Late Period or to the Ptolemaic era, but that a slightly older date remained a possibility.

[25] Dating of the Late Period according to Sasson (2006:vi).

If the *Brooklyn Papyrus* is a copy dating to the Late Period, how old is the original on which it is based? A definitive answer may not be possible, but we have a few clues to consider. Paragraph 42c of the *Brooklyn Papyrus* reads as follows: *qmɜ.n.tw.t mḏɜt tn m rk nsw bjty rᶜ-nfr-kɜ, mɜᶜ ḫrw* (this Papyrus has been revealed in the time of the king of Upper and Lower Egypt, Neferkare, just of voice). According to Meyrat (2019:719) this short mention regarding the origins of the papyrus is curiously lost in the text instead of being in a more usual placement, such as a heading or a title. Such mention should not only give the throne name, but also the birth name of the king being referred to (Meyrat 2019:719). This makes the identity of Neferkare of the *Brooklyn Papyrus* a bit of a mystery.

'Neferkare' appears to be a praenomen (personal or generic family name) used by several Egyptian kings, particularly of the earlier dynasties. Sauneron (1989:60) believes this Neferkare to be Pepi II, a Sixth Dynasty pharaoh of the Old Kingdom Period. 'Pepi' was the birth name of this pharaoh, however 'Neferkare', meaning 'beautiful is the soul of Ra', was his throne name (Clayton 2006:64). Wilbour, in a letter to his wife in 1881, refers to 'the Pyramid of *Pepi* and his two sons, *Rameren* and *Nefer-ka-ra*' (Capart 1936:30). This Nefer-ka-ra, being the son of Pepi I, is Pepi II. It is presumed, says Meyrat (2019:720) that the Neferkare referred to in the *Brooklyn Papyrus* must be Pepi II rather than Ramesses IX because of the importance of the sections of the *Pyramid Texts* containing incantations against snakes (Meyrat 2019:720).

Pepi II seems to have ruled from 2278–2184 BCE – a rather long reign and existence! Murnane (2006:713) quotes 2288–2224/2194 BCE as the dates for Pepi II's reign. According to Murnane's king list (2006:712–714), Pepi II is the only pharaoh listed with the name of Neferkare. If he is indeed the Neferkare mentioned in our *Brooklyn Papyrus*, then the original papyrus would have been over 4000 years old – in other words it would have been written approximately 4000 years ago. This would make the original papyrus approximately 1700 years older than the *Brooklyn Papyrus*. However, it must be remembered that writers of papyri liked to claim a document's origins in great antiquity in order to promote their importance and acceptance.

Nevertheless, elements of the vocabulary of the copy have classical overtones. Sauneron (1989:61) thinks it is possible that collections of recipes against snakebite could have existed

as far back as the Old Kingdom Period, which dates to 2675–2130 BCE according to Sasson (2006:xi), and, besides which, considerable parts of the *Pyramid Texts* are dedicated to defence against snakes. The first tentative classifications of venomous species, according to Meyrat (2019:722) probably date back to the Old Kingdom Period, and were most likely compilations of ancestral oral tradisions and collections of observations on thevictims of bites (Meyrat 2019:722).

It does appear, however, that Pepi II was not the only pharaoh to use 'Neferkare' as a throne name. According to Clayton (2006:28), Manetho (an Egyptian priest of the Third century BCE who wrote about the history of Egypt in Greek)[26] places three pharaohs between the Second Dynasty pharaohs Peribsen and Khasekhemwy, one of whom is named Neferkara. He adds that there is not much evidence for the existence of these three pharaohs. Approximate dating of the Second Dynasty pharaohs is 2890–2686 BCE (Clayton 2006:26). According to Meyrat (2019:721), it is unlikely that these Second Dynasty pharaohs are good candidates for the Neferkare mentioned in the *Brooklyn Papyrus* because the title of the Controllers (or Priests) of Serqet had not been attested in a formal manner before the Sixth Dynasty.

Another pharaoh to have used the name 'Neferkare' was the New Kingdom king, Ramesses IX. His throne name was Neferkare Setepenre (Clayton 2006:167). During the Third Intermediate Period one comes across three pharaohs using 'Neferkare' as a throne name. Amenemnisu of the Twenty-First Dynasty is the first of these (Clayton 2006:178); the next is Peftjaubastet of the Twenty-Third Dynasty (Clayton 2006:188); and the last is Sabaka (or Shabaka), a Twenty-Fifth Dynasty Nubian or Kushite king (Clayton 2006:190). These three rulers are also discussed by Meyrat (2019:724–725). Another small possibility for the identity of the *Brooklyn Papyrus's* Neferkare is a new king recently identified by the re-examination of some blocks from the sacred lakes of Amun and Nut at Tanis (Meffre & Payraudeau 2019:157). This king is Neferkare Pami II from the Twenty Third Tanite Dynesty who probably reigned around 712–670 BCE (Meffre & Payraudeau 2019:154, 156).

However, the king that stands out noticeably for Meyrat (2019:724–726) as a probable candidate from the others as the Neferkare of the *Brooklyn Papyrus* is Shabaka. Shabaka, or Neferkare Shabaka, was a Twenty-fifth Dynasty ruler (716–702 BCE) who ruled over the

[26] https://www.britannica.com/biography/Manetho (accessed 9th December 2019).

kingdom of Napata and regained control over Lower Egypt (Shaw & Nicholson 2002:266). He ruled a century before the possible composition of the *Brooklyn Papyrus*, and he is the last king of any importance to carry the name Neferkare (Meyrat 2019:724).

According to Nunn (2002:96) the amount of magical incantations or spells appearing in the medical papyri in general did increase in the later documents, while the older papyri had very little magical content. This minimal appearance of magic was an Old Kingdom influence. In my opinion, the *Brooklyn Papyrus* has very little obvious magical content – I have calculated the incorporation of incantations and mythological references in the treatment section at less than 10%. This fact could assist in the dating of the original document if one takes Nunn's (2002:96) observation into consideration. I noticed that a cluster of very similar treatment recipes with magical content appears at the very end of the treatment section of the *Brooklyn Papyrus* and one wonders if these might have been added by a scribe while making the Late Period copy.

2.2.4 Discovery of the *Brooklyn Papyrus*

The exact provenance of the *Brooklyn Papyrus* is unknown. According to the *Annual Egyptological Bibliography 1967* (Jansen 1972:144), the Papyrus came to the Brooklyn Museum in 1947 as part of the papyri collection of Charles Edwin Wilbour, bequeathed to the museum by his daughter, Miss Theodora Wilbour. It is described as the manual of a snake charmer. At this point it was newly unrolled – almost twenty years before it was examined by Serge Sauneron of the *Institut Français d'Archéologie Orientale du Caire*.

In Sauneron's article for the *Brooklyn Museum Annual*, Volume X (1969:109) he writes the following with reference to the hieratic papyri of the Wilbour Collection: 'Although their place of origin is not yet known, we can now assume that most of these papyri came from the same source, undoubtedly a vase containing the scientific and religious archives of a temple or sanatorium. At the present stage of the study, various indications point to the town of Heliopolis as the provenance of this remarkable library'.

2.2.5 Conservation of the *Brooklyn Papyrus*

The *Brooklyn Museum Annual* (Volumes VIII and X) contains articles by Sauneron that give an insight into the difficult task of conserving the papyri in the Wilbour Collection. The magnitude of the conservation task is well illustrated by information provided by Sauneron

(1989:98) in which he says that several of the papyri had never been unrolled and that there were ‘several hundred small boxes and envelopes containing approximately 100 000 fragments’. The fragments had come from the papyri.

Sauneron (1968:98) tells us that in 1952 Georges Posener had tried to classify the papyri, but had realised that trying to match up fragments was going to be a near impossible task until the papyri were all unrolled and the subject matter and nature of each could be established. Sauneron initially spent October and November of 1966 at Brooklyn Museum as work on the papyri commenced. He returned there in September 1968 (Sauneron 1969:109). One of the papyri named by Sauneron (1968:102), catalogued as 47.218.48 & 47.218.85, he calls the ‘manual of a snake charmer’.

Clearly, conservation of these valuable papyri was not an easy task. In the process of being moved, fragments came loose. The papyri had to be unrolled and attempts made to match up the fragments to the documents from which they had become detached. The fragments were distributed across 150 boxes. Ostensibly, each box should have contained fragments of a single document, but they did not. Sauneron (1969:109–110) tells us that although a box did contain fragments from a single document, other fragments were included in the box. Many fragments were very small, exacerbating the problem of finding which documents they had come from. To make matters even more complicated, says Sauneron (1969:110), some scribes had a very similar handwriting.

The following factors had to be taken into account when trying to match up fragments: colour, texture and thickness of the papyrus, and if its nature was glossy, matte, smooth, grainy, brittle or supple. Ink types and colour also had to be compared, and one had to determine whether there was writing on the recto and verso of the papyrus, or just on one side alone. Once the pieces had been matched up as far as possible, the papyrus could be mounted and placed under glass plates (Sauneron 1969:110).

Sauneron (1969:111) informs us that when he originally worked on the *Brooklyn Papyrus* in 1966, he had not aligned the upper and lower halves correctly. He was able to rectify this problem in 1968 when he returned to the Museum to re-examine the *Brooklyn Papyrus*. Furthermore, by carefully going through papyrus fragments, Sauneron was able to piece

together page 1, lines 15–27 to an almost complete restoration. Fragments of the preceding lines were recovered but were insufficient to allow for a transliteration and translation.

2.3 WILBOUR, SAUNERON, SERQET AND HER PRIESTS

Who are the people most associated with the *Brooklyn Papyrus*? In our modern era, this would be Charles Edwin Wilbour who procured the Papyrus, and Serge Sauneron, a director of the *Institut Français d'Archéologie Orientale du Caire* who conserved the Papyrus and produced its first translation into French. In ancient Egyptian times the information contained in the *Brooklyn Papyrus* was used by the *kherep Serqet* (the Priests, or Controllers, of the goddess Serqet) who treated the snakebite victims.

2.3.1 Charles Edwin Wilbour

Charles Edwin Wilbour (see Figure 6) was an American born in 1833. He studied at Brown University and became a lawyer and a journalist for a newspaper called the *New-York Tribune* (Wilson 1964:232). In 1874 he departed New York and went to live in France where he studied Egyptology as an apprentice to Gaston Maspero[27] in Paris (Margiotta 2009:7). He also studied under the German Egyptologist, August Eisenlohr (1832–1902) in Heidelberg (Wilson 1964:102). In France, Wilbour became acquainted with Victor Hugo and translated *Les Miserables*, as well as Ernest Renan's *The Life of Jesus,* into English (Margiotta 2009:8).

Both Wilson (1964:101) and Margiotta (2009:9–12) tell of Wilbour's hurried departure from America to France. This departure appears to be because of his connection with the corrupt politician, William M. Tweed. Tweed had gained control of the *New York Transcript* newspaper and he procured Wilbour from the *New-York Tribune,* placing him in a managerial position because it served his purposes to have control of someone who managed a tabloid. His fraudulent activities would naturally have cast a shadow over Wilbour.

Wilbour's first trip to Egypt was in 1880. Letters from Wilbour to his family from 1880 until 1891 illustrate his time spent in the country (Wilson 1964:232). In 1886 he purchased his

[27] Gaston Maspero (1846–1916) was a French Egyptologist and was a director of excavations and antiquities for the government of Egypt (https://www.britannica.com/biography/Gaston-Maspero [accessed 29th March 2017]). He headed the first *Ecole Française du Caire* (French School of Cairo), which was given its current name *d'Institut français d'archéologie orientale du Caire* (the French Institute of Oriental Archaeology of Cairo) in 1898. https://www.ifao.egnet.net/institution/ifao/historique (accessed 26th June 2020).

dahabiya (houseboat), the 'Seven Hathors', and from 1889 until 1896 Wilbour and the Reverend Archibald Sayce, an Oxford professor and Egyptologist, travelled together on the Nile in their respective *dahabiyas*, the 'Seven Hathors' and the 'Istar' (Wilson 1964:99–100). Both gentlemen had extensive libraries aboard their vessels, and Wilbour's library was later donated to the Brooklyn Museum by his family (Wilson 1964:232).

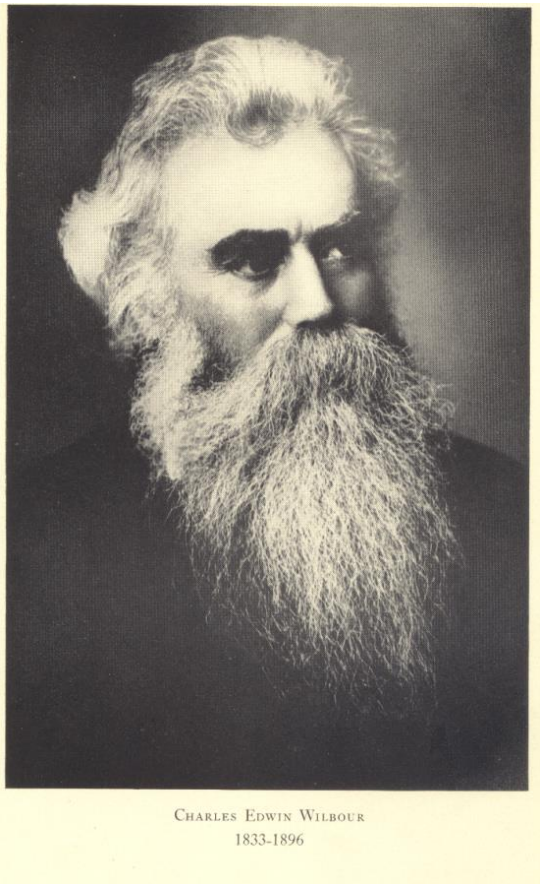

Figure 6: Charles Edwin Wilbour[28]

Wilson (1964:105) notes that Wilbour visited excavations, tombs and temples in Egypt. He made notes and sketched plans and had a passion for copying inscriptions. However, none of his work was ever published. It is noted that Wilbour collected antiquities. Sellers of antiquities would approach Wilbour directly but he also had a servant by the name of Saïd whom he would dispatch to find antiquities (Wilson 1964:107).

[28] 'Wilbour Charles E'. *Travels in Egypt: letters of Charles Edwin Wilbour*. (Jean Capart: ed. Brooklyn N.Y., : Brooklyn Museum, 1936), frontispiece. Courtesy of Brooklyn Museum Libraries, Wilbour Library of Egyptology.

Capart (1936:42) states that from Wilbour's first trip into Elephantine, in February 1881, onwards, various local women would bring potsherds and papyrus fragments from the mound of the old town for him to look at – no doubt with the hope that he might purchase them. Early in 1893, nine papyrus rolls were bought by Wilbour in Elephantine (Wilson 1964:108). In addition, it is mentioned by Margiotta (2009:54) that Wilbour obtained seventeen Aramaic papyri early in 1893. Nevertheless, none of these papyri was ever properly examined by Wilbour. He packed them into biscuit boxes and into the bottom of a trunk along with other papyri, and there they remained until 1947 when they were donated to the Brooklyn Museum. Wilson (1964:108) says that they were Persian era records of the Elephantine Jewish colony. However, we know that the *Brooklyn Papyrus*, now labelled 47.218.48 and 47.218.85, were among the possessions that arrived at the museum in an unrolled state in 1947 (Jansen 1972:144).

Was the *Brooklyn Papyrus* perhaps one of those papyri procured in Elephantine along with the Persian era papyri? And if so, did this copy originate in Elephantine or did it come from elsewhere to Elephantine, where it came into Wilbour's hands? In truth, it could have been obtained from anywhere in Egypt between 1880 and 1893 during the course of Wilbour's travels.

Not only did Wilbour purchase antiquities in Elephantine, but also in a number of other Egyptian towns. For example, in February 1881 while in Luxor he writes to his wife: 'I have been looking over the collections which the Arabs have for sale' (Capart 1936:46). And then in Luxor: 'I have found among the antiquity vendors some papyri'. He knew Mohammed Mohassib, who was considered to be a 'reliable dealer' in Luxor (Capart 1936:48). From Cairo, in October 1881 Wilbour mentions in another letter to his wife: '…I found Saïd waiting for me and men with antiquities…' (Capart 1936:73). A month later in Cairo, Wilbour mentions purchasing Greek, Coptic and Pehlevi papyri from another dealer named Farrakh (Capart 1936:81). Once back in Elephantine early in 1882, the women of the town brought him more papyrus fragments among the potsherds and whatever else they managed to procure from the old mound.

So it appears that over the years in Egypt, Wilbour clearly purchased antiquities from many places. Perhaps we shall never know exactly where our 'manual of the Priests of Serqet' (the

Brooklyn Papyrus) passed into Wilbour's hands. He died in 1896 (Wilson 1964:232) and that information rests with him. Margiotta (2009:5) credits Charles Edwin Wilbour's philosophies and scholarship with giving rise to what he calls the 'American model of Egyptology'.[29]

2.3.2 Serge Sauneron

The transliteration of the *Brooklyn Papyrus* (47.218.48 and 47.218.85) from hieratic into hieroglyphics, and the translation into French, was undertaken by Serge Sauneron (see Figure 7). What is known of this remarkable man who was once a director of the *Institut Français d'Archéologie Orientale du Caire* and author of countless publications on Egyptological topics?

Figure 7: Serge Sauneron[30]

Serge Sauneron was born in January 1927 in Paris. He attended first the *Lycée Henri IV*, and then the *École Normale Supérieure* (Bierbrier 1995:373). There he followed the teachings of Gustav Lefebvre, having developed an interest in Egyptology. He was introduced to hieroglyphics by the French Egyptologist Pierre Montet, who was himself a student of Victor Loret (Leclant 1981:85). He also followed the teachings of Pierre Lacau, who, in his capacity

[29] The American model of Egyptology was influenced by Wilbour's belief that accuracy was extremely important. He was devoted to the analysis of the philology and epigraphy of the ancient Egyptian language (Margiotta 2009:56).

[30] Photograph of Serge Sauneron courtesy of the *Institut Français d'Archéologie Orientale du Caire.*

of Director of the Department of Antiquities of Egypt, oversaw the excavations of the tomb of Tutankhamen by Howard Carter.

After a brief stint in the military, in 1949 Sauneron set off for Egypt. He was nominated as a member of the *Institut Français d'Archéologie Orientale du Caire* in 1950, and fulfilled several roles, including director of excavations, librarian and secretary-general. Sauneron made great contributions to the library at the institute in Cairo. According to Bierbrier (1995:374), he 'initiated the publication of accounts of the early European travellers to Egypt'. He had a great interest in the temple at Esna and was involved in excavations and publications associated with the temple. His major work was dedicated to this temple in Esna. In 1962 Sauneron received his *doctorat d'État* from the Sorbonne, his thesis bearing the title *Les fêtes religieuses d'Esna aux derniers siècles du paganisme* (The religious festivals of Esna from the last centuries of paganism) (Leclant 1981:86).

Sauneron became a director of the *Institut Français d'Archéologie Orientale du Caire* in 1969 (Bierbrier 1995:373). In this role Sauneron reorganised the printing section, established a photographic laboratory, developed an archival centre, and put in place the new series of publications presenting the works of the members and missionaries. Sauneron also initiated, with the French priest and researcher Jules Leroy, a summary of the paintings of the monasteries of Egypt (Leclant 1981:86).

Sauneron's sphere of interest and activities involved all of Egypt: chiefly Pharaonic Egypt, but it also included the Christian and Muslim eras. He mastered hieroglyphics in all its forms, specialising in hieratic, and was also practised in Coptic and Arabic (Leclant 1981:85).

Sauneron's translation of, and commentary on, the *Brooklyn Papyrus* was published posthumously in 1989 as *Un traité Égyptien d'ophiologie* by the *Institut Français d'Archéologie Orientale du Caire.*

It is tragic that this man, who had contributed so much to Egyptology, was killed at the age of 49 in a car accident on the desert road between Cairo and Alexandria in 1976. As Leclant (1981:85) points out, Sauneron was, at the time of his death, head of a great research centre which he had renovated extensively.

2.3.3 The goddess Serqet and her priests

Serqet (Selket, Selqet, Serket) was a snake and scorpion goddess known from the Old Kingdom's First Dynasty onwards (Nunn 2002:100). Generally depicted with a scorpion upon her head (see Figures 8 and 9 below), Serqet was called upon by physician-priests to assist in ridding a patient of venom who had been bitten by a snake or stung by a scorpion.

The name 'Serqet' is an abbreviation of the phrase '*serqet hetyt*' – she who causes the throat to breathe (Hart 2005:141), or 'one who allows the throat to breathe' (Von Känel 1984:285). One is justified in asking what the connection is between the goddess Serqet-Hetyt, who assists in breathing, and her function as one who is involved in the fight against venomous creatures, says Von Känel (1984:285), who then lists some of the symptoms of a snakebite or scorpion sting: there is an injection of toxins which affect the nervous system. Primary symptoms are: nausea, vomiting, sweating, temperature increase, and blood in the urine. After this, the toxins affect the respiratory system and death can follow paralysis of this system as the heart eventually stops (Von Känel 1984:285). There is, therefore, a connection between venom and the respiratory system.

Von Känel (1984:285) says that another facet to consider about Serqet is her role in the fight against the demon serpent Apophis (Apep), who threatens cosmic order (see 5.2.2.2, note 2 for the discussion on Apep). As a result of being appointed to oppose this demon serpent of the underworld, Serqet is also involved in the fight against snakes and scorpions (Von Känel 1984:285).

Serqet's role as a protective deity is well attested from as early as the New Kingdom *Pyramid Texts*, in which she is named with the epithet 'lady of the beautiful house' (Nicholson & Shaw 2002:262), referring to the embalmer's tent, an epithet which links her to the funerary cult (Hart 2005:142). Hart (2005:142) says that this goddess also performed a protective role around the throne of the king. In the funerary context she is grouped with Isis, Nephthys and Neith. Perhaps her most familiar depiction for us today is as one of the four protector goddesses of the Eighteenth Dynasty pharaoh Tutankhamun's canopic shrine (Nunn 2002:100). Specifically, Serqet protected the intestines (Desroches-Noblecourt 1963:247), and sometimes she protected the god Qebehsenuef who protects the intestines (Hart 2005:142).

The Priests of Serqet performed a specialised magico-medical practice in patient care in the instances of snakebites and stings from venomous animals (Aufrère 2013:94). Nunn (2002:99–100) discusses the *kherep Serqet* – Priest of Serqet – as a priest who practised medicine, specialising in the treatment of snakebite and scorpion-sting victims. These priests were not only medical practitioners but also professional magicians (Nunn 2002:120), which was not unusual as magic permeated every aspect of daily life for the ancient Egyptians, and it was used extensively by medical practitioners and healers.

As Aufrère (2013:94) points out, in a country where snakes are very prolific, the *kherep Serqet* is held in high regard, and their existence is attested from the First Dynasty right up until the Ptolemic and Roman times in ancient Egypt (Aufrère 2013:94).

Von Känel (1984:284) says that the *kherep Serqet* was discussed by Gardiner in an article[31] on professional magicians, and that many observations made by Gardiner remain valuable. In order to understand the functions of the *kherep Serqet*, Gardiner first investigated the goddess Serqet herself (Von Känel 1984:284). According to Gardiner (Von Känel 1984:284), the title *kherep Serqet* should be translated as 'the one who has power of the goddess Serqet'. Yet, according to Von Känel (1984:284), in a deeper study of the goddess Serqet, one acknowledges that the *kherep Serqet's* functions are essentially a characteristic of the goddess herself. Consequently, Von Känel (1984:284) believes that the title *kherep Serqet* should rather be translated as 'master (head) of Serqet' with an interpretation of *appartenant à* – belonging to – Serqet, instead of 'one who has power over' Serqet (Von Känel 1984:284).

To come back to the goddess Serqet, Gardiner was of the opinion that the goddess was especially qualified to heal the bites and stings of venomous creatures (Von Känel 1984:284). This hypothesis, says Von Känel (1984:284), was partly based on the fact that the creature used as a determinative for the name 'Serqet' is a scorpion. However, the determinative creature may have its origins in the water scorpion, a water insect of the Nepidae family[32]. Gardiner himself acknowledges that Serqet is completely absent in a large number of papyri where incantations against scorpions exist (Von Känel 1984:284–285).

[31] The article by Gardiner (1917) is Professional magicians in ancient Egypt, *PBSA* 39 (1917), pages 31–44.
[32] http://www.britannica.com/animal/giant-water-bug. Accessed 1st July 2020.

In his study, Von Känel (2011:viii) establishes that the *kherep Serqet* was a specialist in the treatment of bites and stings of venomous creatures. Along with a colleague, the *ouâb* Priest of Sekhmet, the *kherep Serqet* was a ritualist from times of great antiquity, appointed to the protection of the king (Von Känel 1984:viii). Regarding the rarely-mentioned *sa Serqet* – Protection of Serqet – due to a paucity of documents mentioning this title, Von Känel (1984:viii) considers that this title may represent an aspect of the *kherep Serqet*.

The title of *kherep Serqet* could be held simultaneously with another medical title. A stele from the site of Abydos conserved in the Cairo museum confers this title on a person named Nemtyemhat who also carries the title of 'chief doctor', or *swnw* (Tallet 2011:4), and Von Känel (1984:VIII) says that the *ouâb* Priest of Sekhmet and the *kherep Serqet* could often be one person carrying the two titles at the same time.

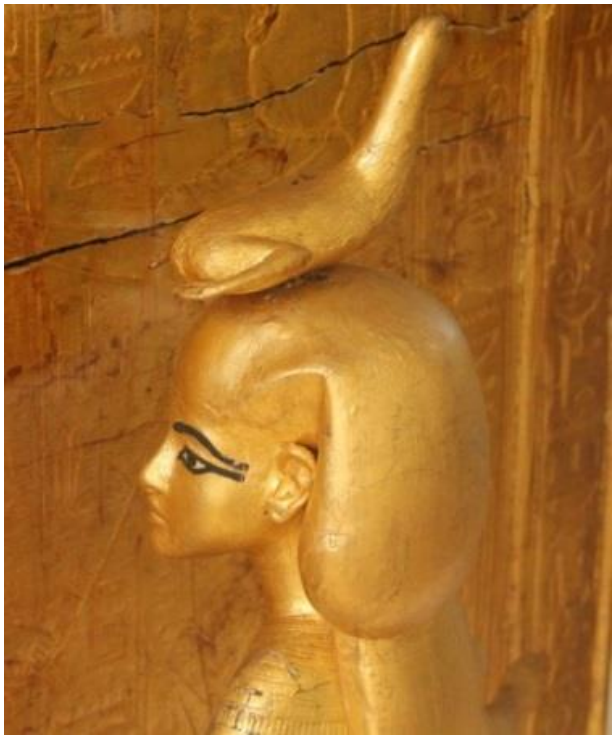

Figure 8: The goddess Serqet as protector of the shrine which contained the canopic chest of Tutankhamun[33]

The first mention of *kherep Serqet* of which Von Känel (1984:VIII) is aware in his study is from the First Dynasty, and the last traces of the *kherep* Serqet date to the Roman era – a period of more than three thousand years. The Priests of Serqet were, therefore, known about in the Old Kingdom and First Intermediate Periods (see Table 6.4 in Nunn 2002:121), and

[33] Photograph courtesy and copyright www.meretsegerbookscom.

Hart (2005:142) also says that the first mention of *kherep Serqet* – Priest, or Controller, of Serqet – appears in the First Dynasty, while the first appearance of the name *sa Serqet* – protection of Serqet – is found in the Fifth Dynasty (Hart 2005:142).

Mentions of the name of *kherep Serqet* are listed in detail in Von Känel's (1984:163–231) comprehensive study and his analysis of the inscriptions on these artefacts illuminates the role of this priest. The study commences with the earliest attestation in the First Dynasty on the *stele of Merika*[34] from his tomb in Saqqara (Von Känel 1984:163). In general, in the Old Kingdom Period, the name *kherep Serqet* appears on stelae, reliefs, mastaba, and false door stelae in chapels (Von Känel 1984:163–170). From the Old Kingdom period, the *kherep Serqet* was attached to the palace as a physician or as an inspector of physicians (Von Känel 1984:294). Here, the *kherep Serqet* is clearly involved in a medical capacity.

During the Middle Kingdom Period, the name *kherep Serqet* is found in inscriptions in temple stelae in the Sinai, on a statue from Thebes and in a Coffin Text spell on a sarcophagus (Von Känel 1984:171–178). One of the important functions of the Priests of Serqet during this period was to accompany mining expeditions and thus be on hand to treat snakebite victims (Ritner 2003b:199). Regular mining expeditions organised by the state were made into the south-eastern peninsula of the Sinai for turquoise and copper from at least the start of the First Dynasty, according to Tallet (2011:3).

In the lists of officials present during the course of these expeditions dating to the Middle Kingdom Period is the regular presence of personnel carrying the title *kherep Serqet* or *shed ouhaout* – Repeller of Scorpions, two categories of personnel who appear to have had the treatment of scorpion stings as their primary function. This treatment was perhaps by means of practical magic (Tallet 2011:3). During the Middle Kingdom Period, the Priests, or Controllers, of Serqet are attested almost exclusively in the context of the mining expeditions conducted in the Sinai (Tallet 2011:4). Von Känel (1984:295) adds that in the Sinai, the *kherep Serqet* are always found in medical or funerary contexts and are always among the [personnel] structure of the expedition.

[34] The *stele of Merika* is made of limestone and was found is tomb 3505 at Saqqara (Von Känel 1984:163).

It is during the Middle Kingdom Period, says Von Känel (1984:295) that one sees the speciality of the *kherep Serqet* transferred onto the cosmic plan: the destruction of Apophis (Apep). Spell 752 (Spell for entering the West daily in the retinue of Ra) of the *Coffin* (or *Sarcophagus*) *Texts*[35] allows us to understand this important function of the *kherep Serqet*, as repeller of dangerous snakes of which Apohis (Apep) was the prototype:

> O you gods [who keep] the doors of [. . .] of the *rɜ*-goose and who watch over the portal of Her who ascends to the sky, open to me so that I may breathe the breezes which are in the midst of the waters and that the bark may convey me in her bow, for I am he who has charge of the rigging in the god's bark, and I row, for I know how to pull, and my seat is in the bark. I am skilled in the craft of Her who permits throats to breathe; therefore I will drive off Apep, ferrying across the firmament; I will not be replaced in the streams which are above, for I know the food(?) of the god of offerings, and I have shown it to the gods (Faulkner 1977:287).

The name *kherep Serqet* is also attested in the New Kingdom Period on chabti inscriptions, tomb walls at Deir el-Medina, a stele from Thebes, ostracons and in the *Turin* and *Chester Beatty XI papyri*. In addition, the name is found in graffiti in the Theban necropolis in the Valley of the Kings (Von Känel 1984:179–192). During this Period, the *kherep Serqet* is still the same healer of bites and stings of venomous creatures. However, one sees that in the Theban necropolis the role begins to evolve, combining the activities of doctor and that of a worker in the royal tombs (Von Känel 1984:296). A Twentieth Dynasty *ostracon (DM 388)* from Deir el-Medina, where the royal tomb workers resided, indicates that the *kherep Serqet* earned a salary in kind, the same as the workers involved in tomb construction (Von Känel 1984:296).

Further evolvements in the role of the *kherep Serqet* occur during the New Kingdom Period. There are several attestations of incantations and prophylactic texts written by the *kherep Serqet* to ward off snakes and scorpions. The role of 'medium' also appears. Evidence shows that the title *kherep Serqet* is used for an intermediary between supplicants and deities, and also as an arbiter of quarrels, says Von Känel (1984:296). This latter role was carried out by a *kherep Serqet* and 'guardian' at Deir el-Medina named Neferhotep (Von Känel 1984:296). This function of judge or arbiter signals the importance of the role played by the *kherep Serqet*.

[35] The *Coffin Texts*, or *Sarcophagus Texts*, are a collection of spells derived largely from the *Pyramid Texts*, and were inscribed on coffins during the Middle Kingdom Period (Shaw & Nicholson 2005:69).

The *kherep Serqet* is attested in the Late Period on a statue, in tombs, on a canopic jar, and of course, in the *Brooklyn Papyri* (47.218.45 and 47.218.85) as well as 47.218.138 (Von Känel 1984:193–203). The context and quality of the monuments from the Late Period indicate that the person of the *kherep* Serqet was not just a healer, but a dignitary and official of the court, a doctor-in-chief whose speciality was the healing of bites and stings of venomous creatures (Von Känel 1984:297).

Before the title filters out completely, a few mentions of the name *kherep Serqet* are attested from the Ptolemaic and Roman eras (see examples in Von Känel 1984:205–214).

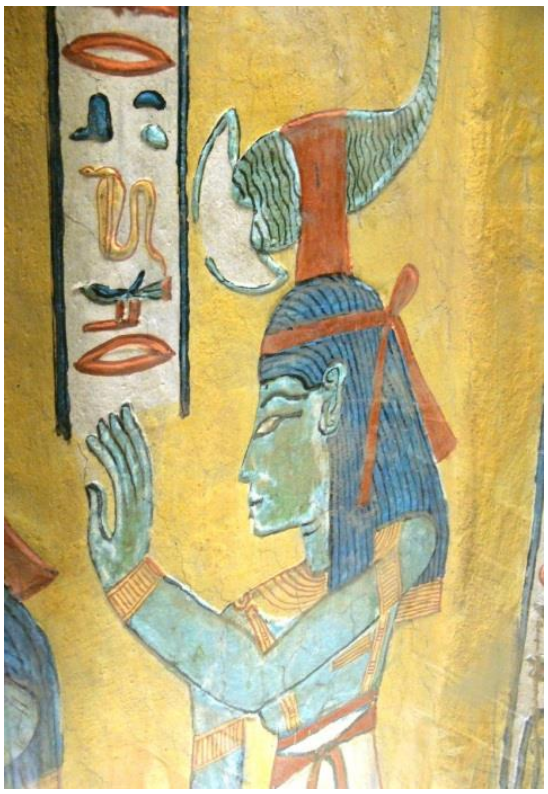

Figure 9: Serqet –painting on the wall of the tomb of Khaemwaset, Valley of the Queens[36]

The *Brooklyn Papyrus* was the identification, treatment and training manual of the *kherep Serqet*, the Priests, or Controllers, of Serqet. Considering that they were around long before the Late Period, it is not impossible that the first manual was written much earlier than the Thirtieth Dynasty, as suspected by Sauneron. The *Brooklyn Papyrus* was either compiled from much earlier multiple sources or copied from an earlier source.

[36] Photograph courtesy and copyright www.meretsegerbookscom.

2.4 CONCLUSION

The *Brooklyn Papyrus* is a copy of an earlier original. This copy probably dates to the Late Period, while the original work upon which it was based may have its origins in the Old Kingdom Period. Although the exact provenance of the Papyrus is unknown, it fell into the hands of Charles Edwin Wilbour during his travels in Egypt. It was then bequeathed to the Brooklyn Museum sometime after his death by his family.

The two separate pieces of the Papyrus were studied by Serge Sauneron and conserved, and this enabled him to transliterate and translate its contents. This process revealed that the first part of the Papyrus was concerned with the identification of snakes encountered by the ancient Egyptians, while the second part detailed treatment procedures to be followed in the instance of snakebite. This Papyrus appears to have served as a manual for the Priests, or Controllers, of Serqet (priest-physicians) when treating snakebite victims.

This chapter provides a context for the Brooklyn Papyrus and answers most of the questions about its background. Unfortunately we do not know precisely when it came into the hands of Wilbour or where it was originally found in Egypt.

CHAPTER THREE

THE MEDICAL PAPYRI VERSUS THE *BROOKLYN PAPYRUS*

3.1 INTRODUCTION

How does the *Brooklyn Papyrus* compare with the other medical papyri and where does it fit in? Is it a general medical document or a specialist manuscript? It is important to investigate these questions in order to establish if the *Brooklyn Papyrus* is the best available document for the study of snakes and snakebite treatment in ancient Egypt. Before commencing with a transliteration and translation of the *Brooklyn Papyrus*, it is necessary to give some background information on the other well-known medical papyri that are often quoted and mentioned by scholars, in order to compare them with the *Brooklyn Papyrus*, and confirm that this Papyrus stands outs out from its peers as a unique medical treatise.

3.2 THE MEDICAL PAPYRI

3.2.1 A description of the known medical papyri

What we know about ancient Egyptian medicine and how patients were treated is gleaned from written sources (the medical papyri and ostraca[37]) as well as from human remains (in terms of surgical interventions).

In 1952, Chauncey D. Leake discusses the seven most well-known medical papyri at that time in *The old Egyptian medical papyri.* Fifty years later, six more medical papyri had come to light and John F. Nunn presents a thorough overview of all 13 in his work *Ancient Egyptian medicine* (2002).

Nunn (2002:24) notes the following points about these medical papyri: they were mostly obtained with no information regarding their provenance; most of them are written in hieratic script (except the *Ramesseum V Papyrus* (see 3.2.1.2) which is written in cursive hieroglyphics, and *Papyrus Vindob (D.6257)* from Crocodilopolis (see 3.2.1.2) and the

[37] An ostracon is a piece of pottery broken off from an earthenware vessel and has writing etched onto it.

London-Leiden Papyrus (see 3.2.1.2) and which are written in demotic, an ancient Egyptian script containing Greek influence [Nunn 2002;41]); and they all have certain sections in common, despite their apparent specialisations, the only exception being the *Brooklyn Papyrus* which had no such commonality with any other papyrus.

3.2.1.1 Leake's list of medical papyri

a) *The Edwin Smith Papyrus*

The *Edwin Smith Papyrus* was bought in 1862 by Edwin Smith from an Egyptian merchant in Luxor. Although the provenance of the papyrus is not known, Nunn (2002:26) says that it is thought to have come from the tomb of a physician located within the Theban necropolis.

The *Edwin Smith Papyrus* is a copy dating to approximately 1550 BCE (Nunn 2002:25) or 1600 BCE (Leake 1952:8). It is primarily a surgical papyrus, which Nunn (2002:26) says is a rational document containing diagnoses and treatments, and has very little in the way of magical content. Nunn (2002:27) says that it was believed by Breasted[38] and Westendorf[39], who studied the papyrus, that its original may date to the Old Kingdom Period based on its vocabulary and grammar, as well as a reference to the First Dynasty. However, this reference to the First Dynasty may be an attempt to establish the authority of the papyrus by making it appear to be a long standing document of greatest antiquity. Much of the text is in Middle Egyptian. Its logical format suggests that it is an instruction manual. In other words, each of the 48 cases mentioned has a title, an examination, a prognosis, and a treatment – provided that there is a potentially positive outcome expected (Nunn 2002:27–28). In fact, Leake (1952:13) says that the *Edwin Smith, Ebers* (see below) and *Kahun* (see below) *Papyri* may well have been intended for study and instruction. The *Edwin Smith Papyrus*, says Leake (1952:9), was unfinished.

b) *The Ebers Papyrus*

Like the *Edwin Smith Papyrus*, the *Ebers Papyrus* is a copy of an earlier work. It was obtained by Edwin Smith in 1862 (Nunn 2002:30). Its provenance is not known, other than that it may well have come from a tomb in the Theban necropolis and, says Nunn (2002:30),

[38] James H. Breasted was an American archaeologist and Egyptologist.
[39] Wolfhart Westendorf was a German Egyptologist and a co-author of the extensive work on ancient Egyptian medicine: *Grundriss der Medizin der alten Ägypter* (1954–1973).

the possibility does exist that it came from the same tomb as the *Edwin Smith Papyrus*. In 1872 it was bought by Georg Ebers and then became known as the *Ebers Papyrus* (Nunn 2002:30).

The *Ebers Papyrus* seems to be of a similar date to the *Edwin Smith Papyrus* (Nunn 2002:25), but although similar, its contents deal with general medical conditions rather than surgical matters. It appears, according to Leake (1952:12), to be a complete document, with its content matter derived from several different sources. It contains 829 prescriptions. The *Ebers Papyrus* appears to be dated to the ninth year of the reign of Amenhotep I (approximately 1534 BCE), as stated on its verso (Nunn 2002:31). Its organisation seems to be a bit haphazard when compared with that of the *Edwin Smith Papyrus*, with headings often missing or diagnoses presumed (Nunn 2002:32). Like the *Edwin Smith Papyrus*, there are very few magical spells included – only 14 in number.

c) *The Kahun Papyri*

The *Kahun gynaecological papyrus* is part of the *Kahun Papyri* collection discovered near al-Lahun in the Fayum area by Flinders Petrie (Nunn 2002:34). It is a copy dating to 1900 BCE (Leake 1952:7) or to 1820 BCE (Nunn 2002:25). In addition to its gynaecological subject matter, it includes a veterinary section (Nunn 2002:34; Leake 1952:7). According to Nuun (2002:34), the papyrus is apparently badly damaged and there is one fragment with an incantation (Nunn 2002:35).

d) *The Hearst Papyrus*

The provenance of the *Hearst Papyrus* is unknown, but in 1901 it was given to members of the Hearst Egyptian Expedition near Deir el-Ballas by a villager (Nunn 2002:35).The *Hearst Papyrus* is also a copy of an earlier work and appears to date to around 1450 BCE (Nunn 2002:25). According to Leake (1952:13) it is a 'practising physician's formulary', incomplete, and may have been compiled from a few sources (Leake 1952:14). Formulae are repeated and it is not well organised. It lists a total of 255 prescriptions – some of which also appear in the *Ebers* and *Berlin medical papyri* (Leake 1952:14). The content of the text appears to cover general medicine (Nunn 2002:35).

e*) The Berlin Medical Papyrus*

Nunn (2002:37) says that the *Berlin Medical Papyrus* was acquired in Saqqara by a Giuseppe

Passalacqua, who sold it to Friedrich Wilhelm IV of Prussia in 1827 for the Berlin Museum collection.

The *Berlin Medical Papyrus* (# 3038), dates to approximately 1200 BCE (Nunn 2002:25) or to 1300 BCE (Leake 1952:15), and covers general medical conditions. It is not to be confused with the medical papyrus # 3027, also in the Berlin Museum, which deals with childbirth and infants and is referred to as the *Erman Document* by Leake (1952:14–15). According to Nunn (2002:37) the text style of papyrus # 3038 is that is of the Nineteenth Dynasty. The papyrus claims ancient origins of the First Dynasty, as does the *Edwin Smith Papyrus*. It has a section on blood vessels in common with the *Ebers Papyrus* (Leake 1952:15). Leake (1952:15) points out that the *Berlin Medical Papyrus*, like other medical papyri, was probably copied from older documents. In my opinion, identical sections between these two papyri would suggest that one is copied from the other, or perhaps both are copied from another source.

f) *The Chester Beatty Medical Papyri*

The *Chester Beatty Medical Papyri* were part of a collection of papyri discovered in a tomb at Deir el-Medina in 1928. They were found during excavations and the papyri came into the hands of collector and wealthy industrialist Sir Alfred Chester Beatty (Nunn 2002:37).

The *Chester Beatty Papyri* are allocated a date of around 1200 BCE by Leake (1952:16) which concurs with Nunn's dating (2002:25), and *Chester Beatty VI* (BM 10686) deals with diseases of the anus. According to Leake (1952:16), its treatment recipes are not common to any of the other papyri.

g) *The London Medical Papyrus*

The provenance of the *London Medical Papyrus* is not known, but it appears to have been owned by the Royal Institution of London until being passed on to the British Museum, (Nunn 2002:38), where it is housed as BM EA 10059.

A date of approximately 1300–1350 BCE is given to the *London Medical Papyrus* by both Leake (1952:15) and Nunn (2002:25). Nunn (2002:25) describes this as a 'mainly magical' papyrus. Leake (1952:15) says that this papyrus is copied from an older one. It contains 61 prescriptions and numerous recitals along with concluding prayers (Leake 1952:15). Of the

61 prescriptions (or paragraphs), 25 are medical in content, leaving the majority balance as magical prescriptions (Nunn 2002:39).

h) *The Erman Document*

The *Erman Document* is a papyrus dealing with childbirth and infants and resides in the Berlin Museum as Papyrus 3027 (Leake 1952:14). According to Leake (1952:15) it was written in approximately 1600 BCE. Magical incantations and two remedy prescriptions are directed at childbirth and caring for infants (Leake 1952:14)

3.2.1.2 Nunn's list of medical papyri

Nunn adds the following papyri to those listed above, and which are not mentioned by Leake as they had not come to light at the time when his book was published.

a) *The Carlsberg Papyrus VIII*

The origin of the *Carlsberg Papyrus VIII* is unknown (Nunn 2002:39). It is a copy of Nineteenth or Twentieth Dynasty style, but the original may date back to the Twelfth Dynasty (Nunn 2002:39). The recto side, concerning eye diseases, is apparently an exact copy of sections of the *Ebers Papyrus* that also deal with eye diseases (Nunn 2002:39).

b) *The Ramesseum Papyri*

The *Ramesseum Papyri* by were found Quibell in 1896 inside a box in a tomb behind the Theban Ramesseum (Nunn 2002:39). Three of the papyri (III, IV and V) have some medical information. The medical content includes general medicine, eye and childhood diseases, and gynaecology (Nunn 2002:39). All three papyri have magical and medical content (Nunn 2002:39), but papyrus V has the least magical content of the three papyri (Nunn 2002:40).

c) Additional medical papyri

The other medical papyri listed by Nunn (2002:41) are the *London* (BM 10072) and *Leiden Papyrus*, the *Papyrus Vindob (D. 6257)* and the *Brooklyn Papyrus*. These copies date to approximately 250 CE, 150 CE and 300 BCE respectively. The *London-Leiden Papyrus*[40] has

[40] The *London-Leiden Papyrus* is a single papyrus that was sold in two parts. One part was purchased by the Dutch and this is the *Leiden Papyrus*, while the other part was obtained by the British Museum (Nunn 2002:41). It is not to be confused with the *London Medical Papyrus* (BM EA 10059) (Nunn 2002:38).

general and magical content while the *Papyrus Vindob (D. 6257)* has general medical content only (Nunn 2002:41).

3.2.1.3 Recently available medical papyri

There are some recent publications that have brought additional important papyri to light which fall into the category of medical papyri.

a) *Papyrus Louvre E 32847*

In 2018 the seven meter long *Papyrus Louvre E 32847* became accessible. The papyrus is divided into sections and it contains a collection of prescriptions for the royal court, a 'book' of tumours of Khonsou (which contains numerous mythological elements), a collection of instructions for embalming dignitaries and a series of medications for the royal court (Volokhine 2018:62). The papyrus appears to date to around the reign of Amenhotep II of the Eighteenth Dynasty (Volokhine 2018:62).

Interestingly, the *Papyrus Carlsberg 917*, which is currently being studied at the University of Copenhagen, correlates with the *Papyrus Louvre E 32847* and together they make up the second longest extant medical document from Pharaonic Egypt (Schiødt 2019:202). Schiødt (2019:202) refers to the two above-mentioned papyri as *Papyrus Louvre-Carlsberg* and notes that there are numerous passages which are previously unattested, adding new knowledge to the understanding of the medical sphere of ancient Egypt. In addition, there are passages that are made up of narratives that are mythological in nature (Schiødt 2019:202).

b) *Papyrus Wilbour 47.218.138*

The *Papyrus Wilbour 47.218.138* has a possible dating of somewhere between the Thirtieth Dynasty and the start of the Ptolemaic era (Meyrat 2013:319). Like our Brooklyn Papyrus, the *Papyrus Wilbour 47.218.138* was donated to the Brooklyn Museum by Miss Theodora Wilbour in 1947 (Goyon 2012:1) and is described by Sauneron (1969:113) as 'a compendium of magic formulas against reptiles'.

The first part of this papyrus is dedicated to the protection of the king from snakes, scorpions and venomous arachnids (Goyon 2012:VII). In the second part one finds protective measures to keep these same creatures out of homes and orchards, while the third part provides spells to seal the mouths of reptiles in general (Goyon 2012:VIII). In the fourth part of the papyrus

are the spells to seal the mouths of snakes (Goyon 2012:VIII) and, finally, in part five is a collection of spells to assist in the capture of reptiles.

3.2.2 A comparison between the *Brooklyn Papyrus* and the other medical papyri

An investigation into how the *Brooklyn Papyrus* compares with the medical papyri listed above reveals some interesting features about the *Brooklyn Papyrus*.

3.2.2.1 Specialist versus general medical papyri

The first point that strikes one is that we can see from the brief descriptions of the major medical papyri above, is that the medical papyri can be general or specialist in the context. The specialist papyri would be the *Edwin Smith Papyrus* (surgical) (see 3.2.1.1), the *Kahun Papyrus* (gynaecological) (see 3.2.1.1), the *Erman Document* (childbirth and infants) (see 3.2.1.1), the *Chester Beatty Papyrus* (diseases of the anus) (see 3.2.1.1), the *Carlsberg VIII Papyrus* (eye diseases) (see 3.2.1.2), the Papyrus Wilbour 47.218.138 (magical formulas to deal with reptiles), and our *Brooklyn Papyrus* (snakebite). It stands to reason, therefore, that medical personnel did have specialities[41], and hence it is entirely plausible that the Priests of Serqet would deal solely with the treatment of snakebite victims. The *Brooklyn Papyrus* is the only one of these medical papyri dedicated entirely to snakebite, and in this subject matter it stands alone.

3.2.2.2 Rational versus magical format

Like the *Ebers* (see 3.2.1.1) and *Edwin Smith Papyri*, the *Brooklyn Papyrus* is predominantly a rational document. Very little magical content is found in the text. The *Chester Beatty*, *Kahun* and *Hearst Papyri* (see 3.2.1.1 above) are similarly grounded.

The *Chester Beatty Papyrus*, in my opinion, is similar to the *Brooklyn Papyrus* in its rational treatments. It contains no magical treatments. The format is very much like that of the *Brooklyn Papyrus* in that the condition is described, followed by the list of ingredients and, usually, their quantities for the treatment recipe. The method of treatment administration to the patient is then given, often accompanied by the duration of treatment. For examples of the *Chester Beatty Papyrus* prescriptions, refer to Jonckheer (1947).

[41] Medical personnel in ancient Egypt had fields of specialisation. For example: the *swnw ḫt* was a specialist in abdominal complaints, the *swnw jrty* was an eye doctor, while the *jbḥ* was a dentist who could also carry the title of *swnw* (Nunn 2002:119).

The *Hearst Medical Papyrus* is entirely rational in nature. There are no magical means of treatment in the treatment recipes, which are aimed at a range of ailments. Some dosage or ingredient quantities are given. A few treatments for animal bites are found but none for snakebite.

The *Ebers Papyrus* compares best to the *Brooklyn Papyrus* in terms of the prescription formula. The condition to be treated is stated, followed by the medicinal ingredients to be used, along with their quantities, method of preparation and then intended use and occasionally the duration of the treatment. Refer to Lalanne & Métra (2017) for over 800 examples of treatments in the *Ebers Papyrus*.

In contrast to these six papyri, other medical papyri contain little or no rational treatment, only incantations and spells, as can be demonstrated below. Introduced into the discussion for comparison are minor medical papyri: *BM EA 9997* and *10309*; *BM EA 10042* (a large part of the *Harris Papyrus*) and *BM EA 10085*.

a) *BM EA 9997 and 10309*

In contrast, a hieratic papyrus that deals with incantations. It resides in the British Museum, catalogued as *BM EA 9997* and *10309*. Leitz (1999:3) in *Magical and medical papyri of the New Kingdom* regards the two sections as part of the same New Kingdom Period papyrus.

The papyrus contains a magical approach to dealing with snakebite treatment. Incantation 2 is predominantly a magical text in which a goddess is bitten by a snake and the symptoms described seem to indicate a neurotoxic bite. At the very end of a long incantation are a few lines of instruction, in which the names of three crocodiles are written in ochre on a new cup, which is filled with sweet beer to be drunk by the patient (Leitz 1999:8).

On examining *BM EA 9777* and *BM EA 10309*, I noticed that out of a total of seven incantations in *BM EA 9777* and four incantations in *BM EA 10309*, this prescription of sweet beer to be drunk by the patient is the only 'medicine' prescribed. The balance of the papyrus consists of incantations, largely based on mythology, typically used in snakebite treatment (the myth of Isis and Rê, and the myth of Isis and Horus). The focus is undoubtedly on invoking the gods with these mythological references and any mention of a medicinal substance to be taken seems to be incidental.

b) *BM EA 10042*

The New Kingdom Period manuscript, *BM EA 10042* (a large part of the *Harris Papyrus*), is purely magical, consisting of hymns and incantations (Leitz 1999:1) – it has no medical content in terms of rational treatments. In this it differs completely from the *Brooklyn Papyrus*, to my mind.

c) *London Medical Papyrus*

The *London Medical Papyrus* (BM EA 10059) predominantly contains incantations against skin complaints, eye problems, bleeding (to ward off miscarriage), and burns (Leitz 1999:51–52). Occasionally medicinal ingredients are mentioned, but their manner of use is not specified. The papyrus appears to be a mixture of magical and rational treatments. Based on my observations, the *Brooklyn Papyrus*, on the other hand, does specify quantities of ingredients and method of use in most of the treatment recipes.

d) *BM EA 10085*

BM EA 10085 is a New Kingdom Period papyrus containing two 'conjurations of snakebite' (Leitz 1999:85). Section I appears to be part of the Isis-Horus myth in which Horus has been bitten by a snake. Section II is rather obscure but, as in section I, the poison is likened to the flood waters (Leitz 1999:87). Both sections appear incomplete and the extant portions are entirely mythological in nature. This papyrus does not contain rational treatment in the extant portions. This makes it entirely different to the *Brooklyn Papyrus*, in my opinion.

3.2.2.3 The instruction manual versus the physician's manual

It would appear that the *Brooklyn Papyrus* may have been an instruction manual. As seen in Chapter Two, its layout is comprehensive and is clearly divided into two sections. The first gives descriptions of the various snakes and the effects of their bites. The second contains treatment recipes, along with specified quantities of ingredients, explanations on how to prepare and mix these ingredients and instructions on how they should be administered to the patient. This format compares favourably with the other medical papyri that are thought to have been instruction manuals, namely the *Edwin Smith*, *Ebers* and *Kahun Papyri*. The *Chester Beatty Papyrus* mentions dosage or ingredient quantities in a number of its recipes and on that basis could also be considered an instruction papyrus. By comparison, the *London Medical Papyrus* does not give dosage quantities, which suggests that it is not an instruction manual.

3.2.2.4 The medical papyri and listings of snakebite treatment

The *Brooklyn Papyrus* deals with snakebite treatment and no other medical conditions. The question is whether rational snakebite treatment appears in any of the other medical papyri discussed in this chapter. As we have seen above, *BM EA 10085*, and *BM EA 9997* do cover snakebite but their treatment is confined to magical spells or incantations. Therefore, it appears that no realistic or rational snakebite treatments are prescribed in any of the extant medical papyri discussed in this chapter, apart from the *Brooklyn Papyrus*.

3.2.2.5 The Brooklyn Papyrus as a unique document

The *Brooklyn Papyrus* has no common origin with any of the other medical papyri: no instances of material copied from any of the other documents are apparent, nor do any of the other documents appear to have been copied from the *Brooklyn Papyrus*. Only mythological references are in common, and use of mythological references in many types of documents was a fairly standard practice. One may conclude, therefore, that the *Brooklyn Papyrus* is a unique document.

3.2.3 A comparison between the *Brooklyn Papyrus* and the *Pyramid Texts*' snake spells

The Old Kingdom Pyramid Texts are a body of religious and funerary texts. As discussed by Raymond O. Faulkner in *The ancient Egyptian pyramid texts* (1969:v), they were found on the pyramid walls of both the Fifth Dynasty King Unas and the Sixth Dynasty pharaohs. As said in 2.2.3, Sauneron (1989:61) points out that these texts contain spells for protection against snakes, and that possibly they are the precursors of the snakebite treatments described in the *Brooklyn Papyrus*. The *Pyramid Texts'* spells to repel snakes tend to occur in batches. In Faulkner's translation these are Utterances: 226–244 (Faulkner 1969:53–58); 276–299 (Faulkner 1969:84–89); 377–399 (Faulkner 1969:125–130) and 727–733 (Faulkner 1969:313–314).

After browsing through the hundreds of *Pyramid Texts'* utterances in Faulkner (1969), I fail to find anything that resembles snakebite treatments. One can find spells against snakes designed, on a magical level, to repel them and protect the dead, but no snakebite treatments. The only similarity that one can find between the *Brooklyn Papyrus* and the *Pyramid Texts*

spells is the direct form of address to the snake or venom. This direct address occurs only in the magical content of the *Brooklyn Papyrus* treatments. For example in Paragraph 41: [42]

tȝ mtwt! *mj*! *pr ḥr tȝ*!

O Venom (lit. this venom)! Come! Come out upon the ground!

In Paragraph 43b[43] one finds:

nn sḫm.t m ꜥt nb(*t*) *n s n st*

You will not have power over any limb of X, son of Y (lit. a man of a woman)

An example from the *Pyramid Texts* of a direct address to the snake is found in Spell 288: [44]

md(*w*)*: hkj hkrt. js r.k ḥr ḥr wȝt.jrt, m dgw n.f jmj.k jrj wpt.k.*

Recite: Heki (snake), Hekrt (snake)! Go, with your face upon the path! O (my) eye! Do not look at him. You shall not perform your judgement (on me).

Beyond this type of address no other similarities are found between the *Brooklyn Papyrus* and the *Pyramid Texts* with regard to snakes. Therefore I doubt that there are sufficient strong grounds to consider that the possible precursors to the *Brooklyn Papyrus* snakebite treatments are to be found in the Old Kingdom Pyramid Texts, even though the Priests of Serqet were, already in existence during that time (see 2.3.3).

3.3 CONCLUSION

The *Brooklyn Papyrus* is a unique document amongst the ancient Egyptian medical texts. It is a predominantly rational document that served as a teaching manual. Its existence contributes to our understanding that there were areas of specialisation in ancient Egyptian medical practice. In terms of this study, it provides the primary document for investigating snakebite treatment in ancient Egypt

[42] Hieroglyphic text copied from Sauneron (1989:56).
[43] Hieroglyphic text copied from Sauneron (1989:61).
[44] Hieroglyphic text copied from Sethe (1908:234–235).

CHAPTER FOUR

SNAKE VENOMS AND MODERN-DAY TREATMENT PROTOCOLS

4.1 INTRODUCTION

The aim of this chapter is to contribute to achieving one of the primary aims of this thesis, namely discovering what the ancient Egyptians understood about venom and its effects. In order to be able to evaluate this question, one must have a basic understanding of venom, what it can do to the human body, and modern-day snakebite first aid and treatment protocol. This will aid our understanding of the conditions and traumas the Priests of Serqet might have encountered and the treatments they prescribed. So what would the Serqet priests be faced with when treating a snakebite victim?

Venomous snakes are classified into four main families, namely Viperidae, Elapidae, Colubridae and Astractaspididae (O'Shea 2011:16; White 2005:1051–1052). Viperids include vipers and adders (Alexander & Marais 2007:169), while Elapids include cobras and mambas (Marais 2014:118). Colubrids, the largest family, include tree and water snakes (Alexander & Marias 2007:80), and Atracaspids include burrowing snakes (Alexander & Marais 2007:66).

4.2 THE EFFECTS OF SNAKEBITES

An envenomed snakebite can have a devastating effect on the human system and can be fatal. It is hard to imagine what must go through the mind of a snakebite victim knowing the fearful – and possibly fatal – outcome. The question is asked in Paragraph 40 of the *Brooklyn Papyrus*: *jw jn mt.f, jw jn ʿnḫ.f* (will he die, or will he live?)

One can understand that the existence of magical components to snakebite treatment, such as incantations which were aimed at calming the patient's state of mind, were important. So what were the ancient Egyptians up against when attempting to treat a snakebite victim? The

purpose of this chapter is to provide an understanding of snake venom, it effects and how the victim is treated in a modern-day medical facility.

4.2.1 The functions of venom

Venom has several functions. It is a defensive mechanism, but this seems to be more of an incidental function, it helps the snake to immobilise its prey so that it may be eaten and it aids in the digestion of the consumed prey, as snakes cannot chew their food (Alexander & Marais 2007:40, Marais 2014:6).

4.2.2 Types of venom

The subject of snake venom and the venom components, such as proteins, is quite complex, and it is possible for a snake to have more than one kind of venom. The aim here is to keep the explanation as simple as possible.

There are four main types of venom classification according to Alexander & Marais (2007:40): neurotoxic, myotoxic, haemotoxic and cytotoxic. These classifications are based on the reaction in a human victim to the components of the venom. Smaller prey may exhibit a different reaction to the venom. Neurotoxic venom affects the nervous systems while myotoxic venom is responsible for muscle paralysis. Haemotoxic venom affects the blood and cytotoxic venom destroys tissues (Alexander & Marais 2007:40). The venom of a single snake has different proteins that can cause one or more of the above toxic reactions (Alexander & Marais 2007:40) .

The effect of the toxin, say Alexander & Marais (2007:40), can be dependent on several factors including: size of the victim (or prey), age of the snake, and its diet. The way a victim reacts to an envenomed bite, according to White (2005:1064), may also depend on the constitution of the victim and whether or not there has been previous exposure to venom. A victim's reaction may also depend on species of snake, its size, location of the bite and the amount of venom that was injected by the snake during the course of the bite (Marais 2014:14). Another factor that may affect composition or even potency of venom in a single species is the locality of the snake (Marais 2014:15; and personal communication 2nd March

2016)[45]. White's comment (2005:1063) concurs with this, saying that venom within a single species may vary within a geographic range.

4.2.3 Physical effects on the human body

After an envenomed snakebite there can be pain to some degree at the site of the bite. The rest of the symptoms and effects on the human body will depend on the type of venom, degree of envenomation and the constitution of the victim. Not every bite results in envenomation because snakes learn to control the contraction of muscles around the venom glands. This can result in what is known as a 'dry bite'. The contraction of the muscles causes expulsion of venom from the glands down a groove or a duct in the fang (White 2005:1054).

4.2.3.1 Neurotoxic bites

The neurotoxic bite, often from mambas and some cobras, results in some pain and little or no swelling at the site of the bite (Marais 2014:15.

Four types of neurotoxin are discussed in White (2005: 1056–1059). These are presynaptic neurotoxins, postsynaptic neurotoxins, dendrotoxins and fasciculins. These are not the only neurotoxins produced in snake venoms but they are clinically the most important (White 2005:1059).

Both presynaptic and postsynaptic neurotoxins cause a flaccid paralysis, which is described in Muller *et al* (2012:365) as one that seems to start at the top and work its way down. It affects the cranial nerves first (White 2005:1065). So the first noticeable symptoms by the victim may be a prickling or tingling sensation in the tongue and lips. Ptosis (drooping of the upper eyelids) is an early visible symptom. This is likely followed by symptoms such as dysphonia (disturbance in normal voice function), dysphagia (a difficulty in swallowing), drooling and diplopia (double vision) (White 2005:1065). This group of symptoms is followed by an increase in drooling and possibly dilated pupils (White 2005:1065).

[45] Johan Marais is a well-known South African herpetologist and author of numerous publications on snakes. He is an expert for both the Tygerberg Hospital Poison Centre and the Red Cross Children's Hospital in Cape Town, and also consults for various other clinics and hospitals in Africa. Johan Marais established the African Snakebite Institute to provide awareness about snakes and snakebite and runs snakebite first aid courses as well as accredited venomous snake handling courses. (http://www.africansnakebiteinstitute.com. Accessed 14th June 2020).

Paralysis of the facial muscles causing difficulties in speech, swallowing and vision is followed by a descending of the paralysis down to the chest and respiratory muscles. It becomes more and more difficult to breathe and respiratory distress results (Visser & Chapman 1978:142). The victim loses the ability to sit or walk and the neck becomes floppy. Respiratory distress and failure usually occur 6 –12 hours after the bite but may uncommonly occur after 30 minutes or more than 24 hours later (White 2005:1066).

With a presynaptic neurotoxin it is important for the victim to receive antivenom treatment as early as possible, to prevent extensive paralysis which may be irreversible, says White (2005:1056). It is also said by White (2005:1059) that presynaptic neurotoxin can be resistant to antivenom. Certainly the victim will be reliant on ventilation during the recovery period, which takes days, weeks, or even occasionally months. Postsynaptic neurotoxins, on the other hand, are generally reversible with antivenom treatment (White 2005:1057). Dendrotoxins and fasciculins [a group of toxic proteins], according to White (2005:1057), are found in some mamba venoms and cause paralysis and muscular spasms.

Various other symptoms are associated with neurotoxins. They can cause restlessness, dizziness and increased sweating, according to Visser & Chapman (1978:7). The paralysis may be mild or severe (O'Shea 2011:20) and asphyxia can lead to the death of the victim. Other bite symptoms can include a physical weakness, partial or complete paralysis, chills, numbness or tingling sensations in the mouth, tongue, scalp, face or feet, nausea and vomiting (Russell 1980:297–299). Symptoms described by O'Shea (2011:20) include possible sensitivity to sound, loss of smell and taste, and double vision. Another result of a neurotoxic bite is the relaxation of the sphincter muscles, resulting in the release of faeces and urine, say Visser & Chapman (1978:81).

4.2.3.2 Cytotoxic bites

Cytotoxic bites are typical of the viper / adder group. They are also typical of the spitting cobras (Marais 2014: 57, 59, 61, 64). Cytotoxins contain substances that are designed to break down tissues in the body such as cell membranes and skeletal muscles, and thereby help a snake to digest its prey (Muller *et al* 2012:362–363). A bite is often followed by oedema and swelling at the bite site. This can spread through an entire affected limb within an hour. Ecchymosis (skin discolouration due to bleeding into the tissues) may occur (Russell 1980: 289–290). Symptoms described by Visser & Chapman (1978:7) include 'intense pain,

massive swelling, and extravasation'. Extravasation refers to the leakage of fluid. In the case of a cytotoxic bite it would refer to the movement of white blood cells from the vessels into the surrounding tissue[46]. Ecchymosis is a result of extravasation. The patient can die from a drop in blood volume caused by extravasation. This is known as oligaemic shock (Visser & Chapman 1978:7). The victim can develop bullae (or blisters) which are vesicles filled with serous fluid. In severe cases of envenomation, these may also fill with blood (Russell 1980:291). Necrosis at the site of the bite and surrounding tissue can occur, and has the potential to lead to gangrene (Russell 1980:297), a condition which is caused by infected necrotic tissue. Necrosis tends to result from venom concentration and is more likely when bleeding in the vicinity of the wound occurs (Visser & Chapman 1978:69).

There are two types of swelling which are caused by adder bites, as discussed by Visser & Chapman (1978:68–69). The local bite reaction does not seem to be dependent on the type of adder / viper or necessarily the degree of toxicity. The first type of bite shows little evidence of extravasation and, if a limb is involved, it can be hard or soft to the touch. The second type may show some evidence of bleeding – either bleeding from the bite wound or seen as ecchymosis or large solid swelling (Visser & Chapman 1978:68).

4.2.3.3 Haemotoxic bites

The victim of a haemotoxic bite is likely to experience moderate local pain and haemorrhage at the bite location, say Visser & Chapman (1978:7). This is accompanied by the following symptoms: dizziness and headaches, nausea, and haemorrhage – which can result in death due to blood loss. It may take 24–48 hours before serious symptoms appear (Marais 2014:25).

The body's inability to form blood clots is called coagulopathy. After a bite involving venom that causes coagulopathy, the victim's blood will ooze or seep from the bite wound, sometimes from the gums and mucous membranes, and also from any other unrelated wound sites that the victim may have. Ecchymosis to varying degrees may be present around the bite site (White 2005:1067).

[46] https://www.merriam-webster.com/dictionary/extravasation (accessed 10th December 2019).

Haemorrhage is caused by the haemorrhagins in the venom (O'Shea 2011:21). They cause the blood vessels to become permeable, and therefore they leak blood into the surrounding tissue. Some venom, O'Shea (2011:21) informs us, contains both haemorrhagins and procoagulants (see 4.2.3.5), causing the victim to bleed to death. Visser & Chapman (1987:68) also say that adder toxin can potentially destroy all body tissues, including blood vessels. Internal bleeding can cause problems such as internal pressure and ischaemia. Ischaemia is the temporary loss of blood supply to a part of the body caused by a blood vessel being constricted or blocked (Visser & Chapman 1978:141). A serious effect of blood loss (oligaemia) is the possibility of the body going into shock (Visser & Chapman 1978:142).

Haemotoxins cause red blood cells to break down, says O'Shea (2011:21). The haemoglobin passes through the kidneys and exits the body via the urine. A result of this breakdown of the red blood cells is that the kidneys can become blocked up by the broken down blood cells and this can ultimately lead to kidney failure (O'Shea 2011:21) .

4.2.3.4 Myotoxins

Myotoxins target the muscles and destroy muscle fibre. Myotoxins can damage skeletal muscles, but not often smooth or cardiac muscles (White 2005:1059). Myolysis (liquefaction or dissolution of muscle tissue) can be the result. White (2005:1066) mentions that it is usually systemic and rarely local. Myolysis symptoms include muscle pain and tenderness, along with weakness (White 2005:1066–1067), and the victim's urine may be coloured clear red to a deep brown (White 2005:1067).

Like haemotoxins, the myotoxins can also cause kidney failure. In the case of myotoxins, this would be due to the breakdown of the muscle tissue that releases myoglobin, which then passes through the kidneys and is released through the urine (O'Shea 2011:22). Myoglobin is the pigment that carries oxygen in the muscles (O'Shea 2011:22) and is cause of the urine discolouration. Both viperid and elapid venom may contain myotoxin (White 2005:1059).

4.2.3.5 Coagulants and anticoagulants

After an injury, the body has mechanisms in place that assist in the cessation of bleeding. However, we are informed by O'Shea (2011:21) that a number of snake venoms can interfere with the body's normal process in several ways. Snake venoms can be either coagulant or anticoagulant. Some of the venoms have procoagulants which encourage blood clotting.

According to Visser & Chapman (1978:69), puff adder venom encourages blood clotting. This can cause thrombosis, but on the other hand helps prevent the spread of venom. Most of the effects of its bite on tissue and blood seem to remain in the vicinity of the bite wound (Visser & Chapman 1978:69). The body breaks down the clots. Once the procoagulants have depleted themselves, the blood can no longer clot and the patient bleeds (O'Shea 2011:21). Some venoms have anticoagulants, says O'Shea (2011:21) which prevent clotting – giving the same end result as procoagulants.

4.2.3.6 Other toxic components of snake venom

The burrowing asp, says O'Shea (2011:22) contains a sarafotoxin. This causes a narrowing of the blood vessels, and narrow coronary arteries result in less blood reaching the heart and eventually heart failure. Another dangerous group of toxins are nephrotoxins, which may directly affect the kidneys (White 2005:1059).

4.3 MODERN-DAY TREATMENT

This section will provide an idea of modern-day treatment protocols and allow for a comparison with ancient Egyptian practices in the later chapters.

4.3.1 Identifying the snake

When bitten by a snake it is a good idea, if possible, to try to identify the snake, taking into account its colour, pattern, size and body shape. This information may assist with treatment (Alexander & Marais 2007:43). In most instances the snake is not identified and treatment, therefore, must be based on the symptoms that present themselves once the victim reaches a medical facility.

This concept of the importance of identification is demonstrated in the first section of the *Brooklyn Papyrus,* where each snake entry begins with a precise description. For example, Paragraph 21 states: 'Regarding the nebed snake, its length is a cubit and a half; its sides and back are green, its stomach is light; its size compares to that of the ka-en-am snake. One does not die of its deed…' Clearly, the Priests of Serqet realised the snake being described was non-venomous or that its bite was not serious. On the other hand, Paragraph 28 says:

> Regarding the horned viper, its colour is similar to (that of) a quail; it has two horns on its forehead; [its] head is large, its [neck is narrow], [its] tail is thick. (If) the opening of its bite is large, the face of the patient swells, (if) its bite is of small size, the one who has been bitten becomes motionless, but [..?..]. A fever for nine days (but) he will survive.

In the second part of the *Brooklyn Papyrus*, which deals with treatment of snakebite, it becomes apparent that certain treatments were for bites by specific snakes, and that other treatments were for specific symptoms. The ancient Egyptian Priests of Serqet realised that identification of the snake was an important first step in the treatment process. The same principle applies today.

4.3.2 First aid treatment

It is important to provide reassurance and keep the patient calm (Alexander & Marias 2007:43; Muller *et al* 2012:371). This is reiterated by Visser & Chapman (1978:96) who say, in addition, that the one administering the first aid must also remain calm. In the *Brooklyn Papyrus* treatments, calmness of the patient was achieved through the use of incantations and references to important myths to appease the mind of the patient. White (2005:1073) says that snakebite can be a psychological shock to the victim, whether or not the patient has received an envenomed bite.

White (2005:1067–1068) says that many first aid treatments are considered controversial and that the one globally agreed upon action is the immobilisation of the bitten part of the body, and keeping the victim still. Immobilisation of the victim is recommended as it reduces and slows down the spread of venom. In addition, immobilisation assists the reduction of swelling in an injured limb, according to Visser & Chapman (1978:97). Muller *et al* (2012:371) concur on patient immobilisation and advocate the removal of any tight clothing, jewellery and shoes.

A pressure bandage retards the spread of venom via the lymphatic system by use of moderate pressure, and a splint can be used to help immobilise the limb (White 2005:1068). By immobilising the limb the muscles cannot pump, and therefore cannot propel the venom through the system. Bandaging should be avoided in the case of cytotoxic bites (Muller *et al* 2012:371). However, a firm bandage is useful in the instance of a neurotoxic venom bite, as it will assist in slowing down the spread of venom[47]. Marais (2014:18), too, advocates the use

[47] According to Marais this is a debatable point as most first aiders are not suitably trained in the application of

of pressure bandages to assist in slowing down the spread of venom via the lymphatic system, and the rate of absorption of the venom. It is stressed that this use of pressure or crepe bandages should not be used for adder bites – which are likely to have a cytotoxic component. It is, therefore, also not recommended in the case of spitting cobra bites (Marais 2014:19). We read in Marais (2014:19) that the correct application of a pressure bandage requires training to get the pressure correct and should only be removed by medical staff in a hospital. The reason for this is that once the bandage is removed, the venom that has backed up will be rapidly released through the lymphatic system (Marais 2014:19).

A tourniquet should not be applied, and is no longer recommended (White 2005:1068). One of the reasons is that in the case of a cytotoxic bite, where internal pressure will probably develop (Marais 2014:18), a tourniquet will only add to the internal pressure (Visser & Chapman 1978:91). Furthermore, we learn from Muller *et al* (2012:371) that application of a tourniquet can lead to the development of ischaemia (restriction of blood supply to tissues) and potentially tissue necrosis and gangrene. According to Alexander (personal communication 24th February 2016), tourniquets are contraindicated in all bites except possibly a mamba bite.[48]

Pain alleviation medication, if given, must be kept simple, for example acetylsalicylic acid (aspirin). However, Muller *et al* (2012:372) say this must be avoided in victims with haemostatic disorders. Therefore, it is probably best to administer paracetamol or codeine orally rather than take a risk if one does not know the victim. Marais (personal communication 2nd March 2016) does not recommend the use of either aspirin or paracetamol because they may thin the blood and contribute to bleeding.

Suction of the bite wound is not something that is recommended except in one instance by Visser & Chapman (1978:98). This is only in the case of a superficial cobra bite and the suction is performed immediately after the bite by placing a thin rubber sheet between the

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correct bandage pressure. It needs to be 50–70mmHg for a leg and 40–70mmHg for an arm (Marais 2014:19, and personal communication with Johan Marais, 2nd March 2016).

[48] Professor Graham Alexander is a professor of Herpetology, Environmental Physiology and Physiology, and Ecology and Evolution at the University of the Witwatersrand in South Africa. He is a co-chairperson for the International Union for Conservation and Nature (IUCN) Southern African Regional Specialist Group, and also serves for the Viper Specialist Group and the Boa and Python Specialist Group for IUCN. He is the author of numerous scientific papers and articles, and co-author of *A guide to the reptiles of Southern Africa* with Johan Marais (https://theconversation.com/profiles/graham-alexander-220962. Accessed 15th June 2020).

wound and the mouth of the person who is sucking the wound. However, this process can also delay getting the victim to a medical facility. According to Marais (2014:18), suction is not advised at all and does not have any effect, and Alexander (personal communication 24th February 2016) believes suction of the bite wound to be an outdated concept. It is also not recommended by White (2005:1068).

It is possible that the victim may stop breathing on the way to a medical facility. In this instance it will be necessary to restore breathing with mouth-to-mouth resuscitation (Marais 2014:18).

Should the victim receive venom in the eye from a spitting cobra, the eye must be thoroughly washed out with water. Marais (2014:20) says that the victim's head can be held under running water for up to 20 minutes and that the eye must be held open. If one does not happen to have any water at hand, then a bland liquid such as milk, beer or urine can be used (Marais 2014:20).

It is not recommended to give the victim food or alcohol. Clear fluids, however, are permissible (White 2005:1068).

4.3.3 Medical facility treatment

The aim here is not to provide a comprehensive in-depth treatment essay, but rather to give an idea of some of the treatment protocols that may be applied in the case of an envenomed snakebite.

4.3.3.1 Initial considerations

White (2005:1068) says that three important things must be considered by the medical personnel when presented with a snakebite victim. Firstly, what exactly is the condition? Is it snakebite or is it something else? Secondly, if it is snakebite, has envenomation occurred and to what degree. Thirdly, what type of snake bit the victim? Very often there is no answer to the last question, so medical personnel must treat according to the symptoms that present.

White (2005:1068–1069) gives a checklist for medical personnel to use when taking a history from the victim. It is an extensive list but, to be brief, the following are considered: time and place of bite; description of the snake; number of times the victim was bitten; the application

of first aid; symptoms experienced by the victim; any previous exposure to antivenom; and any pre-existing medical conditions.

Examination of the victim includes, but is not limited to, the following: examining the bite site (fang marks, bruising, swelling, blistering, discoloration, necrosis); checking the lymph nodes for tenderness and swelling; checking the pulse and blood pressure; checking for symptoms related to paralysis; checking for evidence of bleeding and ecchymosis; checking for myolysis and urine discolouration; checking for possible renal damage. Cardiac problems are also looked for, as snake venom may affect the heart causing a range of conditions from arrhythmias to heart failure (White 2005:1067).

Various laboratory tests are run to help ascertain the extent of envenoming. Tests are repeated to check the progression of envenomation as an initial test may appear normal (White 2005:1069). As White (2005:1069) points out, many victims go to small or rural hospitals where the ability to perform these laboratory tests does not exist. However, certain tests would be possible, including urinalysis and whole blood clotting time. Regional hospitals should also be able to perform the following tests: coagulation studies, platelet and absolute lymphocyte counts, checking of electrolytes, urine and creatinine levels, and determination of arterial blood gas (White 2005:1069).

Basic medical facility treatment, as listed by White (2005:1070), includes establishment of the intravenous line and checking of the patient's airway, breathing and circulation. Regular monitoring of the following is required: pulse, blood pressure, respirations, cardiac rhythms and blood tests. In addition, urine output must be checked and the patient must be monitored constantly for signs of myolysis, paralysis or bleeding disorder (White 2005:1070).

4.3.3.2 Administration of antivenom

Conventional modern-day treatment in medical facilities can include the use of monovalent or polyvalent antivenom. It is always best to use the monovalent antivenom if possible. Monovalent antivenom is specifically designed for a particular species, whereas polyvalent antivenom is a non-specific general-purpose treatment. If identification of the snake is not possible then polyvalent antivenom must be used. Unfortunately this increases the risk of the patient experiencing an adverse reaction such as serum sickness (White 2005:1070).

Antivenom is generally only given when it is felt that the patient may benefit from its administration – in other words the potential benefit will outweigh the risks, for example where the victim may lose his / her life due to the envenomation. Muller *et al* (2012:374) advocate its use as early as possible when it is apparent that serious or systemic envenomation is clear. White (2005:1070) concurs with this, saying that antivenom should only be administered when it is evident that systemic envenoming has taken place. Furthermore, antivenom should be administered intravenously and not intramuscularly or into the bite wound. Visser & Chapman (1978:83) say that antivenom can be given intravenously for neurotoxic bites, provided that it is given in large quantities early on. It can also be given for haemotoxic bites (Visser & Chapman 1978:79). Numerous vials are needed and the cost is high.

We are informed by Muller *et al* (2012:375) that when antivenom is administered in the instance of an acute phase of neurotoxic envenomation, the antivenom does not actually stop the symptoms from advancing (including paralysis of the respiratory muscles), but it will decrease the duration of the paralysis and speed up the patient recovery time. It stands to reason, therefore, that the patient must have life support in conjunction with the antivenom treatment. Antivenom given in the case of cytotoxic bites cannot reverse the effect of the venom, unfortunately, but it will limit damage to the body tissues of the patient (Muller *et al* 2012:375).

A serious drawback to the use of antivenom is that the patient may experience an acute allergic reaction (anaphylaxis), which is why it should only be given in a medical facility that can deal with patient resuscitation. This reaction, according to Muller *et al* (2012:375), will occur within the first hour after treatment with antivenom. The patient may not exhibit a negative reaction in this manner but may have a different type of reaction later on, approximately seven days after treatment but even up to 24 days later. This later reaction may take the form of a fever, itching, joint pain, hives, or swelling of the tissues around the joints. Neurological symptoms may also manifest themselves (Muller *et al* 2012:375). According to White (2005:1071), only antivenom can neutralise venom.

4.3.3.3 Respiratory support and cardiopulmonary resuscitation

Neurotoxic bites can result in respiratory failure and respiration needs to be assisted, sometimes by tracheal intubation (Russell 1980:316). Treatment for respiratory failure may

include pressure ventilation, tracheotomy and regular lung aspirations (Visser & Chapman 1978:99).

It is preferable, says White (2005:1072), to avoid tracheotomy owing to the risk of bleeding. If a victim presents with no respiration at all, then it is necessary to commence with cardiopulmonary resuscitation (Muller *et al* 2012:372).

4.3.3.4 Drainage of saliva

The victim of a neurotoxic bite needs to be given treatment to prevent drowning in his / her own saliva. The patient is often unable to swallow; therefore pharyngeal drainage may be necessary (Visser & Chapman 1978:99).

4.3.3.5 Transfusion of intravenous fluids

Depending on the type of bite, a blood transfusion or administration of intravenous fluids may be required. Treatment of a puff adder bite, for example, cited in Visser & Chapman (1978:79), includes replacement of fluids using blood and plasma. This infusion can be used in any bite where bleeding is a problem. In addition to plasma, polysaccharide plasma expanders may also be used (Visser & Chapman 1978:98). An expander is used to help increase or maintain the volume in which blood circulates in the body. It is important that infusions are administered before oligaemic shock sets in. According to Visser & Chapman (1978:99), infusions of blood and plasma are also useful when gangrene is present. Sometimes it is necessary to give a pressor agent (substance that lifts the arterial blood pressure) (Muller *et al* 2012:372). It is not advisable to administer coagulation factor replacement treatment (White 2005:1071).

4.3.3.6 Cleaning and treatment of the bite wound

The bite may result in very clear puncture wounds, or tiny, hardly noticeable marks, or even scratch marks from the fangs. Sometimes only one fang mark is seen, sometimes two, or sometimes more depending on how many times the snake struck the victim. The tissue surrounding the bite wound may react noticeably with swelling, or not at all. Effects of the bite on surrounding tissue may include swelling to various degrees, erythema (a redness caused by capillary dilation), ecchymosis, bleeding, blistering and necrosis (White 2005:1064).

The bite wound needs to be cleaned and, Russell (1980:317) informs us, covered with a sterile dressing. This wound may need to be cleaned on a daily basis. Russell recommends cleansing the wound with Burow's solution (aqueous solution of aluminium acetate), and Muller *et al* (2012:375) advocate the use of an antiseptic. The wound can then be treated with gentian violet and acriflavin (acriflavinium chloride). White (2005:1072) believes that the tissue injury should be treated in a conservative manner. Antivenom may assist in limiting damage to the tissue around the bite wound. Although secondary infection is uncommon, it can occur and administration of antibiotics must be based on results of culture and sensitivity studies (White 2005:1072).

Fasciotomy (an incision to relieve pressure) is not recommended and can cause long-term functional problems. White (2005:1072) thinks that its use should be reserved for severe compartment syndrome cases – cases where pressure in the affected area is so extreme that insufficient blood is supplied to muscles and nerves.

4.3.3.7 Antibiotics

An antibiotic is often given as a matter of course to help prevent tissue infection (Russell 1980:314–315; Visser & Chapman 1978:98) because bacteria (including *Clostridia*) can enter the bite wound along with the venom. However, White (2005:1071) does not agree with this, saying that infection is the exception and that treatment with prophylactic antibiotics is not appropriate. It is best to do culture and sensitivity studies on the organism before prescribing an antibiotic. *Clostridium perfrigens* is the bacterium mostly responsible for gangrene (Murray, Rosenthal & Pfaller 2005:402), although it is not the only opportunistic culprit. Wound incisions can contribute to the entry of bacteria into the body if the instruments used are not sterile (Muller *et al* 2012:375). Treatment for infections caused by *Enterobacteria* is not uncommon. Infection can also be caused by *Staphylococcal*, *Streptococcal* and *Bacteriode* bacteria. It may also be necessary occasionally to treat the patient for infection caused by *Shewanella*[49] bacteria[50].

[49] *Shewanella* are essentially marine bacteria. Infection due to snakebite is unusual. However, refer to investigation by Liu *et al* (2012:431–435).

[50] Dr Gerbus Muller is the founder and former director of Stellenbosch University's Tygerberg Poison Information Centre in South Africa (http://www.cmej.org.za/index.php/cmej/article/view/2546/2581. Accessed 15th June 2020). He is a renowned toxicologist and clinical pharmacologist, and a former lecturer at Stellenbosch University's Faculty of Medicine and Health Sciences (http://stellenbosch68.rssing.com/chan-15952749/all_p32.html. Accessed 15th June 2020). Personal email communication regarding bacteria implicated in snakebites with Dr. Gerbus Muller on 8th February 2016.

Tetanus is caused by the *Clostridium tetani* bacterium (Murray *et al* 2005:402). Russell (1980:315) also advocates the administration of antitetanus but, White (2005:1072) says that a tetanus booster should be avoided if there is coagulopathy.

4.3.3.8 Surgical intervention

There are times when surgery is required in snakebite treatment, according to Visser & Chapman (1978:99). This includes the removal of dead tissue; amputation of a finger, toe or limb; incision of an abscess or even skin grafts. Fasciotomy (surgical procedure to correct compartment syndrome), according to White (2005:1071), is very rarely required and should only be performed if there is complete certainty of compartment syndrome and any issues surrounding bleeding and blood clotting are under control.

Debridement of dead tissue would need to be performed surgically and in stages. Dead tissue must be removed. As we have noted, tissue necrosis can result in gangrene. Sometimes the necrosis is superficial, and sometimes it is deep. Amputation is occasionally required to prevent the spread of gangrene and its toxic effects. Sometimes it is necessary to replace dead tissue according to Visser & Chapman (1978:79).

Aside from the obvious necessary interventions, Visser & Chapman (1978:100) are of the opinion that incisions should not be made as a form of snakebite treatment, as they can aid the progression of secondary infection.

4.3.3.9 Pain control

Pain caused by the bite may vary. The pain is generally controlled with an analgesic such as paracetamol or a paracetamol and codeine combination (Muller *et al* 2012:372) rather than asperin or a non-steroidal inti-inflammatory which may run the risk of gastric bleeding (World Health Organization 2010:75).

4.3.3.10 Immobilisation of the patient

Visser & Chapman (1978:68) say that adder venom in particular can spread quickly through the lymphatic system. Therefore, the part of the body where the bite is situated should be immobilised. Russell (1980:317) mentions that although the patient must be kept immobile, gentle exercise should be introduced in frequent periods. Bitten limbs should be kept in a

position that is comfortable to the patient but should not be excessively elevated, say Muller *et al* (2012:375).

4.3.3.11 Renal treatment

Renal damage may occur as part of the body's reaction to snake venom. White (2005:1067) says this may range from a transient increase in urea and creatinine levels to renal failure or even, rarely, permanent renal damage. Renal problems may develop due to myolysis and the results of haemotoxic venom. It is possible for the victim suffering oligaemic shock to experience renal failure and even lower kidney necrosis, in the opinion of Visser & Chapman (1978:99). Sometimes dialysis is required Visser & Chapman 1978:99).

Myolysis can result in secondary renal failure (White 2005:1072). If urea and creatinine levels rise and the appropriate treatment is given, and the levels should improve after five to ten days. Haemodialysis may be required for tubular necrosis and normal function should resume. However, says White (2005:1072), renal support would need to be ongoing for any severe or permanent damage.

4.3.3.12 Conjunctivitis treatment

For conjunctivitis caused by venom being spat into the eye, the victim's eye is washed and the victim is given pain relief (Visser & Chapman 1978:87). This washing of the eye is generally done with large amounts water or even milk if water is not available (Muller *et al* 2012:377). The use of an antibiotic eye ointment should suffice as treatment if there is no damage to the cornea. If damage is present, then the antibiotic treatment is accompanied by medication to dilate the pupils (a midriatic) and an eye pad to cover the eye (Muller *et al* 2012:377).

4.4 CONCLUSION

The foregoing descriptions make it very evident that an envenomed bite can be extremely damaging to and strenuous on the human body. It can even result in death, but with prompt and correct medical attention, many snakebite victims recover completely. Clearly no 'cure' for snakebite exists, but treatments are available that aid the body and support it during the period the venom takes to work its way out of the system, until recovery.

This does cause one to wonder how the ancient Egyptians treated snakebite victims. What treatments and methods did they have at their disposal? Could the snakebite victims possibly survive some of the severe reactions to snake venom described above without modern forms of intervention? They would be faced with a very difficult task indeed; having to cope with issues such infection and pain control, and the non-existence of antivenom and life-support equipment.

This chapter provides sufficient basic information on snake venom and the effects that it has on the human body, as well as providing an understanding of how snakebite victims are treated in modern-day treatment protocols. This information therefore provides a context within which the ability of the ancient Egyptians to understand venom and its effects on the body can be evaluated.

CHAPTER FIVE

TEXT OF THE FIRST PART OF THE *BROOKLYN PAPYRUS*: DESCRIPTIONS OF THE SNAKES AND THE EFFECTS OF THEIR BITES.

5.1 INTRODUCTION

This translation of the *Brooklyn Papyrus* (47.218.48 & 47.218.85) is based on the hieratic to hieroglyphic transliteration done by Serge Sauneron after his study of the Papyrus in 1966 and 1968. To my knowledge there is no existing published version of a transliteration from hieroglyphics and translation into English.

In the notes I refer to my translation of the hieroglyphic text as the 'current translation' so as not to cause confusion between this and the original French translation of Serge Sauneron. Any other translations into English are also my own unless otherwise specified, and are included in parentheses after the words which have been translated.

Reference to the 'first part' or 'second part' of the Papyrus in this thesis does not mean the two parts 47.218.48 and 47.218.85 (as a result of being torn in two in antiquity), but rather a division into two parts based on subject matter, namely the identification of the snakes and the effects of their bites in part one, and treatment prescriptions in part two.

The first 13 paragraphs of the *Brooklyn Papyrus* are destroyed. The translation of the first part, therefore, begins with Paragraph 14.

5.1.1 Methodology

For each paragraph of the *Brooklyn Papyrus* the hieroglyphic script is given, which is Sauneron's transliteration from the original hieratic manuscript. My transliteration from hieroglyphics into Roman / Latin script is then given, followed by my translation of the paragraph into English. Numbers in the English translation will direct the reader to the notes and commentaries that follow. Any footnotes are indicated by numbers in the notes and commentaries and should not be confused with numbers in the translation. The transliteration

into the ancient Egyptian language is indicated by the use of the Trlit_CG Times font, while foreign words in other languages are indicated by normal italic font.

Occasionally one finds the extra 'curl w' () in an Egyptian word, and also 't'  appearing after a determinative. These are often found in Late Egyptian spellings and have been left out in this transliteration as they have no bearing on the translation of each word concerned.

5.1.2 Symbols used in the text and translation

The symbols used in the transliteration and translation follow Allen (2005a: 30) and Alexander *et al* (2006:30).

5.1.2.1 Square brackets [ ]

Square brackets in the hieroglyphic text and translation are used to indicate missing, illegible or damaged text in the hieroglyphic text. If it is possible to reconstruct the missing text the translated words will remain in the square brackets. If it is not possible to reconstruct missing text, this is indicated by use of ellipses within the brackets, for example […]. In the case of reconstructed text, an explanation will be given.

5.1.2.2 Parentheses ( )

Rounded brackets, or parentheses, are used to indicate words or parts of words that have been added in the course of the translation in order to add clarity. Where they are used in the transliteration they indicate consonants omitted by the scribe or the weak letters such as *ɜ, j* or *w* (see Allen 2005a:30).

5.1.2.3 Half brackets ⌜ ⌝

Half brackets in the hieroglyphic text indicate that the text is legible despite being damaged. In the transliteration, they are used to indicate restoration and /or likely transliterations of damaged text. They may also be used to indicate a possible error on the part of the scribe (Allen 2005a:30). In the translation they are used to show translation of the possible transliteration.

5.1.2.4 Braces { }

Deleted text is indicated by the use of braces.

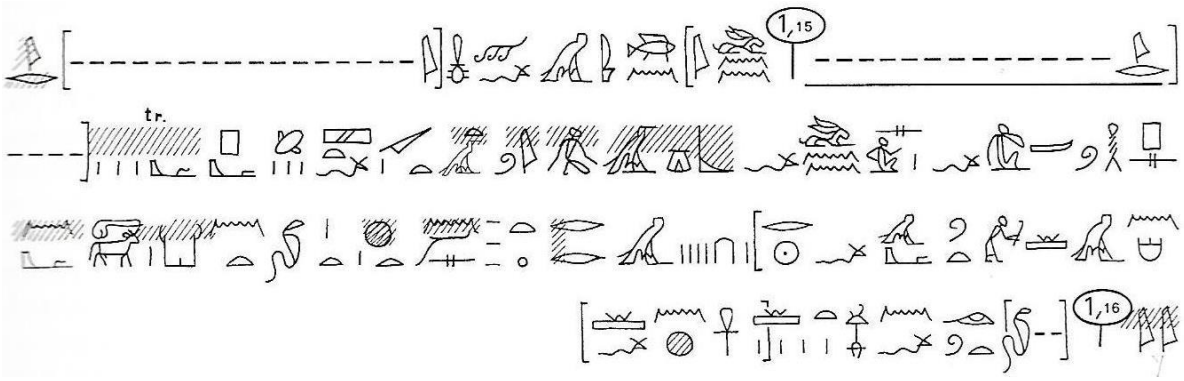
5.1.2.5 Pointed brackets ‹ ›

Pointed brackets are used to indicate a correction made in the translation where it seems an error or omission was made by the scribe in the original text.

5.2 TEXT OF THE FIRST PART: DESCRIPTIONS OF THE SNAKES AND THE EFFECTS OF THEIR BITES

5.2.1 Paragraph 14 – the […..] snake

Brooklyn Papyrus, page 1, lines 14 to 16



[*jr… wnn j*]*nm.f m*[*j…*]. *jr psḥ.f s*(*j*), *wnn.f bꜣg, jw tꜣ dmt šft, pˁ*[*p*]ˁ[*t*] [*… nḥm tw m-ˁ.f r hrw*] *14 m rrt. n*(*j*) *s*(*j*) *ḫt-wˁtt nt kꜣ*[*n*]ˁ*y. jr tw n.f ḥmwt* [ˁ*nḫ.f*].

[Regarding…][1], the colour of its skin is like […]. If it bites a man, he becomes weak[2]. This bite wound[3] becomes swollen, and blisters [4] [appear]. [… one can save (him) from the bite (lit. it) for] 14 days[5] with a remedy[6]. This snake (lit.it) belongs to ka-nay's khetwatet[7]. If one[8] applies the treatment to [the patient, (lit. he) will live].

5.2.1.1 Note 1

Paragraph 14 is the first part of the Papyrus that was salvageable and which Sauneron was able to read. Fragments exist from the first part of the Papyrus, but are insufficient to piece together in order to gain any useful information. Parts of the text are damaged and there are lacunae.

This first line of the text in Paragraph 14 can be reconstructed by analogy with one of the patterns used at the start of other chapters in the *Brooklyn Papyrus* for describing the snakes. The standard pattern is along the lines of *jr* (*ḥfꜣw*) *wnn.f mj…* – which can be translated as 'regarding the … snake, it is like…'. This formula then tends to be followed by a description of the snake. Other examples of this pattern are found in the following paragraphs of the *Brooklyn Papyrus*:

Paragraph 18: *jr kꜣ-n-ꜥm wnn.f mj…*
Paragraph 22: *jr fy tjꜥm wnn.f mj…*
Paragraph 25: *jr nkj wnn.f mj…*
Paragraph 30: *jr fy wnn.f mj…*
Paragraph 31: *jr fy ṯꜣ*(*y*) *wnn.f mj…*
Paragraph 33: *jr ḫf*(*ꜣw*) *nft fy pw, wnn.f mj…*

5.2.1.2 Note 2

The word *bꜣgj* has several possible meanings, e.g. 'being weary', 'languid' or 'lazy'. In the context of a snakebite it is perhaps preferable to use the word 'weak' or 'weaken'. Sauneron (1989:7) provides a similar translation of *celui-ci perd ses forces* (he loses his strength).[51]

5.2.1.3 Note 3

The word *dmt* was a challenge to translate because the scribe uses an abbreviated form of the word. In Von Deines & Westendorf (1962:978) one finds reference to *dmt* in connection with a sting or cut. Nunn (2002:222) gives us *ḫry-dmt* in relation to being bitten or stung, and Hannig (2006:1050) uses a similar phrase: 'one who has been stung', and, by logical analogy, 'bitten'. One of the meanings of the word *dmt* in Hannig (2006:1050) is *stichwunde* which is a 'stab wound' or a 'sting'; and he gives a meaning of 'to be stung by a scorpion' or 'bitten by a snake' with the related verb *dm.*

5.2.1.4 Note 4

Sauneron (1989:7) proposes that *pꜥ*(*p*)*ꜥ*[…] be reconstructed as  . He relates this to a word in the *Ebers Papyrus* (*Ebers* 857) in which a doctor describes the examination of a neck abscess and something on the patient like blisters (*mj pꜥpꜥyt*). The words *mj pꜥpꜥyt* in

[51] All English translations in parentheses are by Wendy Golding unless otherwise noted.

Ebers 857 have been translated as *sembable à une (formation?-) pâpâyt* by Lalanne & Mètra (2017:213). According to them, Ebbell encountered the word *pʿpʿyt* in the *Berlin Papyrus* and proposed meanings such as *ampoule* – blister, or *ulcération*. Sauneron (1989:7) translates this line in Paragraph 14 as *jw dmt šft pʿ(p)ʿ*[…] meaning 'as the wound swells, ulcerations appear'. The word *pʿpʿt* appears in Hannig (2006:291) with the meaning of 'little round balls' or 'spheres'. A translation of 'boils', 'ulcerations' or 'blisters' is, therefore, quite justified here. Fluid-filled blisters at the site of a snakebite wound are not uncommon and perhaps this is the meaning of *pʿpʿyt* in this context.

5.2.1.5 Note 5

This line has been reconstructed by Sauneron (1989:7) as  which he translates as *on sauve de lui jusqu' au*. The number of days, being 14, lies just outside of his reconstruction. One would imagine that, in the context of this particular paragraph, the practitioner must treat the patient for 14 days. The reconstruction is suggested by a similar formula  (*jw.k r nḥm.f*) (you can save him), or *jw.tw r nḥm.f* (one can save him) that appears in Paragraphs 17, 18, 20, 21, 29, 30, 31, 33 and 37 of the *Brooklyn Papyrus*. In Paragraphs 33 and 38 it is extended to include the number of days. In Gardiner (1957:126) one finds *r hrw 4* (as an example) with a meaning of 'for (extending over) four days'. It is not clear in Paragraph 14 if the treatment must be for duration of 14 days, or if it is only effective for 14 days, after which the bite victim may succumb to the effects of the bite.

5.2.1.6 Note 6

Initially this word *rrt* looks to have been an error on the part of the scribe, but it seems to have been a personal preference to use this spelling rather than *pḫrt*. One finds *rrt* as an alternative spelling to *pḫrt* in Hannig (2006:310). The *Brooklyn Papyrus* scribe uses this alternative spelling consistently in the treatment section.

5.2.1.7 Note 7

Sauneron (1989:7) translates *n(j)s(j) ḫt-*[*wʿ*]*tt nt kɜ*[*n*]*ʿy* as *il appartient au (groupe(?) du) serpent* khet-outet *et du* ka-nây (the snake is part of the group of *khet-outet* and *ka-nay*). However, he seems to ignore *nt(j)* between *ḫt-*[*wʿ*]*tt* and *kɜ*[*n*]*ʿy*. The word *nt(j)* effectively

makes the khetwatet (khet-outet) (see 9.2.1.2) a possession of the ka-nay snake (see 6.4.1, 7.2.6.1 and 9.2.1.2). The ka-nay may be a snake in one of the lost 13 paragraphs, and there is a remedy specifically for its bite in Paragraph 57. This nameless snake in Paragraph 14 belongs to the same group as ka-nay's khetwatet. It is possible that the ka-nay is an elapid, and, specifically, one of the cobras. This snake of Paragraph 14 would therefore be a cobra (see 6.4.1).

With regard to  , Sauneron (1989:8) points out that the reading and meaning are not entirely clear. The sign above  could be read as *wʿt* (one). The phrase *ḫt wʿt* is a common term in medical papyri meaning 'homogenous mass / mixture' (lit. one thing). An example of its use appears in Paragraph 59 where the ingredients of the remedy recipe are mixed into a 'homogenous mass'. However, *ḫt wʿt* does not make sense here. The reading of  appears to be *ḫt wʿtt*. Sauneron (1989:9) first considered that *ḫt* could have a meaning of 'group' but he then rejected this because its use in this context is not attested. The word *wʿtt* refers to the uraeus (Faulkner 1986:56; Hannig 2006:194). The use of the word *wʿtt* incorporated into the snake's name could well refer to its identification as one of the cobras (see 6.4.1 for possible identification of the Paragraph 14 snake as either *Naja pallida* or *Naja nubiae* – the red spitting cobra or the Nubian spitting cobra, respectively). Although the name *ḫt wʿtt* is not attested in the *Pyramid Texts* or *Coffin Texts*, we do find the name *jḫt-wtt*, which seems to refer to the royal uraeus[52] there (Sauneron 1989:9). According to Gardiner (1957:555) the word *jḫt* is an Old Kingdom spelling of *ḫt*. Hannig (2006:110) lists the spelling *ḫt* first under the word *jḫt*. It must be noted that the word *wtt*, an obsolete name meaning 'snake' is still found in certain snake names such as *rnnwtt* (Renenutet) (Hannig 2006:238). It is best to read the name of this snake exactly as it is written – *ḫt wʿtt*.

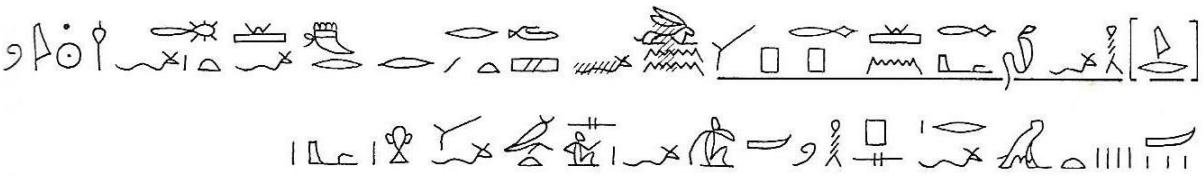
5.2.1.8 Note 8

The scribe of this Papyrus is consistent in his use of *wt* rather than *tw* right throughout the manuscript. This is a known but uncommon spelling (Erman & Grapow vol. 5, 1931:244).

[52] The uraeus is essentially an amulet in the form of an upreared cobra and a protector of royalty, often worn in the crown of the king (Andrews 2003:13).

5.2.2 Paragraph 15 – the Great Snake of Apep

Brooklyn Papyrus, page 1, line 16



[*jr*] *ḥf*(*ꜣw*)ᶜ*ꜣ* ᶜ*ꜣpp, wnn.f dšrt ḏr.f, ḫt.f ḥḏ. jw ṯswt 4 m r.f, psḥ.f s*(*j*) *mwt.f ḥr-*ᶜ.

[Regarding][1] the great snake of Apep[2], it is entirely red, but its belly is pale[3]. There are four fangs[4] in its mouth, (and if) it bites someone, he dies immediately.

5.2.2.1 Note 1

Sauneron (1989:9) uses the word *jr* at the beginning of this paragraph. The word *jr* can be reconstructed confidently here as it introduces the standard formula at the beginning of each paragraph in this first part of the Papyrus.

5.2.2.2 Note 2

The name ᶜ*ꜣpp* is sometimes translated as ‘Apep, i.e. Aapep (Faulkner 1989:38), and sometimes with the Greek rendering of the name: ‘Apophis’ (Allen 2005a:455; Hannig 2006:142). A generally accepted spelling in many books today is Apep. Hannig (2006:142) gives a late (*neuägyptisch*) variant spelling of  , which would be transliterated as ᶜ*pp* and explains the accepted translation of the name as Apep rather than Aapep.

This snake in Paragraph 15 is called ‘the great snake of Apep’. It is not Apep himself (see 9.2.1.2), but one of his minions. Apep had allies in the underworld called *wmmtj*, dangerous snakes who were restrained by chains in Spell 17 of the *Pyramid Texts* by the Four Sons of Horus (Dodson 2003:133). The ‘great snake of Apep’ is clearly a dangerous snake, as one bitten by it dies quickly, as Paragraph 15 of the *Brooklyn Papyrus* informs the reader.

Apep is only attested from the Middle Kingdom onwards. It was believed that this monstrous serpent existed from the beginning of time, at home in the chaotic primeval waters that existed before creation. It was believed that Apep would exist continuously in a cycle of

attack, defeat and resurgence (Wilkinson 2003:221). This repeated cycle is very evident in the important myth of the nightly attack on the sun god, Ra, as he traversed the underworld in his solar barque (Wilkinson 2003:221).

Apep was the most dangerous enemy of the sun god, Ra, and he continuously threatened the divine order (Pinch 2002:106). The ancient Egyptians realised the importance of the role of the sun in sustaining life, and Apep posed a threat to this role. The monstrous serpent attacked the barque of the sun god each night, especially in the seventh and twelfth Hours of darkness, as Ra traversed the perilous underworld (Pinch 2002:107). However, every night the great serpent was defeated with the assistance of other deities and the dead in the underworld (Wilkinson 2003:221). The manner of assistance varies from one source to another, but includes capture by deities in the form of monkeys with magical nets, restraint by deities including the Four Sons of Horus, the cutting up of Apep's body into pieces (Wilkinson 2002:221), and the clubbing or spearing of Apep by Seth, or his beheading by the Great Tom Cat (Pinch 2002:107). The deities and the dead ensured that the sun god was always triumphant, emerging every morning from the underworld, heralded by the sun rise. The sun rises each morning signifying the victory of divine order over chaos, represented by the serpent Apep and the other dangerous creatures of the underworld and darkness.

So important was the cult of Ra that hymns were sung in the temples during the day and night, intended to protect Ra and his solar barque from Apep (Ray 2003:66), and models and pictures of Apep were created by the priests for the sole purpose of their destruction by cursing and then trampling, piercing or burning (Pinch 2002:108).

5.2.2.3 Note 3

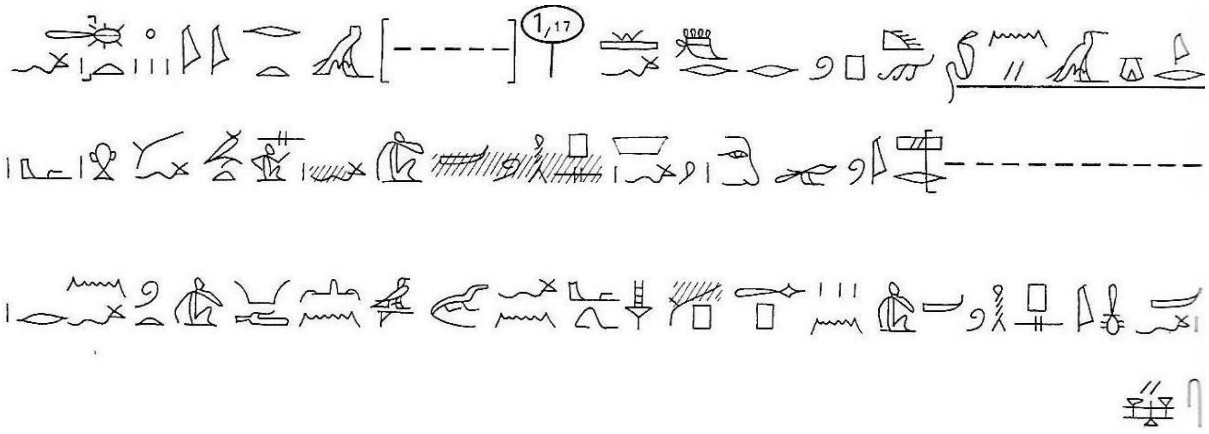
Although the word *ḥḏ* translates as 'white' or 'bright', it may well be preferable to use 'pale' here. The underside of a snake is rarely pure white.

5.2.2.4 Note 4

The reason for the presence of  (*t*) after  was not clear initially. However, it is used to emphasize a feminine noun. This, therefore, indicates that the signs  should be transliterated as *ṯst* rather than *jbḥ*.

5.2.3 Paragraph 16 – the *Gany* snake

Brooklyn Papyrus, page 1, lines 16 to 17



jr gꜣnj, km pw r ḏr.f, [...] *m ryt. ḫt.f* [... *ḥr.f*] *šr*(*r*)*j fnd wsḫ. psḥ.f s*(*j*) *mwt.f ḥr-ꜥ. psḥ.f mj psḥ n ꜥꜣpp. ꜥḥꜥ.f n sbkw. nn šd tw n.f r sḥrꞋjꞋ*(*t*).

Regarding the gany (snake), it is completely black, […] of ink[1]. Its belly is […and its head][2] is small, its snout is large. If it bites someone, he dies immediately. Its bite[3] is like the bite of Apep. It does the bidding of [4] Sobek[5]. One does not recite in order to exorcise it[6].

5.2.3.1 Note 1

The implication here, as noted by Sauneron (1989:10), is that the snake is as black as ink, or the substance from which ink is made. Unfortunately, we do not know what text is lost. The word *ryt* does not necessarily mean 'ink', as Sauneron takes it to mean. Its basic meaning is *farbe* (colour), and then *tinte* (ink), or *farbstoff* (dye) (Hannig 2006:489). A qualifying word has to be added to indicate the specific colour, as *km* in our text. Sauneron (1989:10, note 2) was influenced by the notes in Harris (1961:147) regarding *ryt*. Harris (1961:147) feels that *ryt* may refer to the black powder before the addition of gum, and comments that 'in general, *ryt* must be understood as the common black ink, made largely from soot'.

However, as Harris (1961:147) himself notes, *ryt* may also be red. For example, in *Ebers* 30 there is a remedy for an illness in which *ryt* is used as one of the ingredients, and the ink is specifically red, as indicated by the use of the adjective *dšrt* (Lalanne & Métra 2017:29).

Harris (1961:148) does not believe that *ryt* refers to 'colour', but rather to ink in its powdered form or the form mixed with gum ready for writing. The word (or words) in the lacuna might possibly have been something to which the black snake is being compared in colour, but the exact meaning here has been lost, unless one is fortunate enough to come across a similar description somewhere.

5.2.3.2 Note 2

For the word in the lacuna preceding the word *šrj,* Sauneron suggests 'its head', i.e. *ḥr.f*. This conjecture is based on the sequence of the various aspects of the snake's description in some of the other chapters. In Paragraphs 18, 24 and 28 of the *Brooklyn Papyrus* the order of description is colour, head, neck, and then tail. It is, therefore, not unreasonable to suspect that the words *ḥr.f* (its head) are missing before *šrj*. The words missing before *ḥr.f* are likely to describe the colour of the snake's belly, but there Sauneron offers no conjecture.

5.2.3.3 Note 3

The scribe uses the tooth determinative  (F18 in Gardiner 1957:463) as an abbreviated writing for the word *psḥ* (bite).

5.2.3.4 Note 4

This phrase 'snake + *ḥr n* + deity' appears frequently in the first part of the Papyrus. In each case it describes a specific relationship between a particular snake and a particular deity and the problem is that it is very difficult to interpret the exact meaning of the phrase as well as the exact nature of this relationship. In this Paragraph it describes the relationship between the gany snake (see 6.4.3) and the god Sobek (see 5.2.3.5). This phrase appears again in Paragraph 18 describing the relationship with Sobek (and alternatively with Neith), with Ra in Paragraphs 17 and 25, with Hathor in Paragraphs 21 and 37, with Geb in Paragraphs 22 and 31, with Serqet in Paragraph 23, with Horus in Paragraphs 26–30 and 33, with Seth in Paragraphs 31, 32 and 34, with unknown deities in Paragraphs 35 and 36, and with Anubis in Paragraph 38.

Sauneron (1989:10) translates *ḥr.f n* as 'is the manifestation of', in this case *ḥr.f n sbkw* as *c'est un manifestation de* Sobek and this translation creates rather a problem on several levels. Sauneron (1989:11) does query the meaning of *ḥr n* within the context of this

Paragraph, but he justifies his choice with his interpretation of the similar lines in Paragraph 17, as well as the work of the Egyptologist Vandier, on the *Papyrus Jumilhac*. Sauneron (1989:11) argues that, based on analogy with Paragraph 17, where the snake is a manifestation of two different deities, the snake stands for, or is a manifestation of, a different deity depending on whether the bite is fatal or not – which difference Sauneron (1989:11) personally equates with the difference in season. Sauneron (1989:11), therefore, concludes that an association is made between a god and power, whether destructive or not, which is transferred through the action of every animal species. The inference here would be that the potency of the snake's venom depends on the season. Potency could be equated with 'power'. It is, therefore, possible that the snake as the 'manifestation' of the deity is a representative of that deity's power. Despite considering the opinion of Egyptologist Vandier (1961:81–83), who encountered this phrase in the *Papyrus Jumilhac* and believed it should be regarded as *X est une hypostase de Y*, Sauneron retains his own translation of *ḥr n* as *manifestation de…*

In order to understand why Sauneron retained his own translation of *ḥr n*, it is worth considering Vandier's examination of the phrase *ḥnr nṯrw ḥr.sn n.s* from the *Papyrus Jumilhac*, to which Sauneron refers (1989:11, note 7). Vandier's difficulty in the interpretation of the phrase lay in identifying the 'members' of *ḥr.sn n.s*. The expression '*ḥr* + suffix (= name of a deity) + *n* + name of a deity or suffix' appears frequently in the *Papyrus Jumilhac* (Vandier 1961:81). This indicates that the pronoun suffix attached to the verb '*ḥr*' is equal in status to the deity for which it stands. In other words, X, being a suffix or name of a deity, stands for Y, being a deity. In the *Brooklyn Papyrus* one finds this expressed as '*ḥr.f n* + name of deity'. In the case of the *Brooklyn Papyrus*, X represents the snake and Y represents the deity. In this situation, as Vandier (1961:82) points out, an inferior entity (the snake) stands for a superior entity (the deity).

The problem which Vandier now considers is a suitable translation for the word '*ḥr*'. Vandier (1961:83) uses an example from the *Papyrus Jumilhac* (the palm tree stands for Isis) and he says that it is not the palm tree which may manifest itself for Isis, but rather that Isis may manifest herself in the palm tree. Here it is the superior entity (Isis), who has the power to manifest herself in the inferior entity (the palm tree). Vandier (1961:83) says that possibly the best French word to translate '*ḥr*' is *hypostase* (hypostasis). Thus, one can say that X is the hypostasis of Y (Vandier 1961:83; Sauneron 1989:11). The deities may present

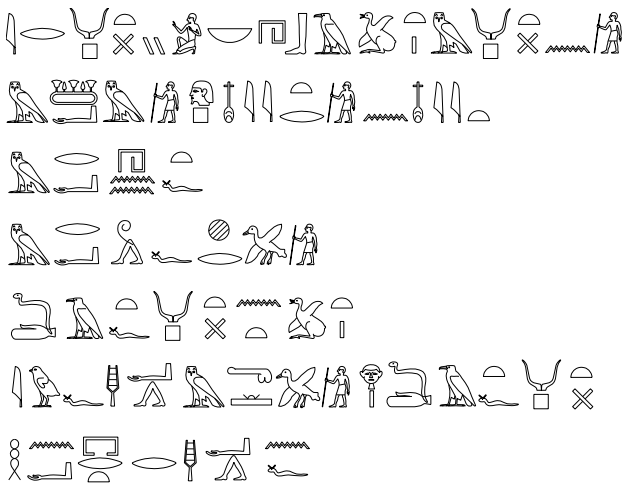
themselves in many different aspects or hypostases. The problem with translating *ḥꜥ* as ‘hypostasis’ in the case of the *Brooklyn Papyrus* is that the snake is not an aspect or hypostasis of the deity.

However, none of the deities of which the snake is supposed to be a manifestation, according to Sauneron’s interpretation, has an obvious ophidian aspect to his / her nature, yet for some reason there was a connection in the ancient Egyptian mind and this connection with a particular snake, or snakes in general, was probably made clear in the mythology of the particular deity, as in the cases of Ra and Horus.

Unfortunately, the nature of these connections is seldom or rarely known to us, for what we know of ancient Egyptian myths is fragmentary and incomplete. The myths we do have were pieced together from various sources, there being no single complete source (Pinch 1994:18), and myths continually changed and developed over time (Pinch 2002:5). We can with reasonable certainty assume, however, that there were mythological connections, especially because the role played by myth in magic was very important, and the two were closely linked (Pinch 1994:18).

The word *ḥꜥ* has several possible meanings, depending on which preposition is used with it, e.g. ‘withstand, oppose’, ‘succeed someone’, ‘rise up against someone’, etc., but the basic meaning is ‘to stand’ (Faulkner 1986:47; Hannig 2006:166–167). For *ḥꜥ n* Faulkner (1986:47) includes the outdated phrase ‘to attend on someone’ and, as he usefully includes his source, this possible meaning requires further consideration.

In order for this further consideration to happen, it is perhaps best to look at Faulkner’s source for the meaning of *ḥꜥ n*, which is a text from the *Urkunden der 18. Dynastie* (volume 4, part 4), edited by Kurt Sethe (1909:1107–1108). The textual source contains the duties and functions of the vizier of Upper Egypt and the relevant text below deals with messengers of the vizier. The vizier was a very important person and second only in authority to the king. Accordingly, the text focuses on the correct protocol to be observed. The relevant piece of text containing the phrase *ḥꜥ n.f* follows with a transliteration and translation:



jr wpwtj nb hɜb ṯɜtj m wpwt n sr, m-šɜʿ-m sr tpj nfryt-r sr n nfryt, m r-ʿ hnnt.f, m r-ʿ jw.f ḫr pɜ sr. ḏd ɜt.f wpwt nt ṯɜtj. jw.f ʿḥʿ m mt pɜ sr, ḥr ḏd ɜt.f wpwt, ḥnʿ prt r ʿḥʿ n.f.

> Regarding every messenger whom the vizier sends with a message to an official, from the first official to the lowest official, close by he will bow to him, as he approaches the presence of (lit. in the vicinity, close to) the vizier. Performing his duty, he shall deliver the message of the vizier (lit. his action shall…). As a proper representative (lit. as the exactness) of this official, he will stand up straight and perform his task of delivering the message. And (then) he goes out to do his bidding (lit. to attend on him).

Thus, the phrase *ʿḥʿ n,* taken in the context of the *Brooklyn Papyrus*, could suggest that the snake attends on, or does the bidding of, a particular deity. To 'attend on someone' can have a meaning of 'to obey' or to 'be the tool of' (Kirkpatrick 1987:450). To 'obey' can be synonymous with 'do one's bidding', 'wait upon', or 'obey orders' (Kirkpatrick 1987:373). One must remember that the ancient Egyptians believed that illness and misfortune could be bestowed upon a person by the gods (Nunn 2002:96). The concept of obeying orders / doing one's bidding may apply here. The bite is as a result of the order of a particular deity. Therefore, *ʿḥʿ.f n sbkw* could well mean that the gany snake does the bidding of (attends on) Sobek in afflicting a person with a bite, rather than being a manifestation of the god, as is Sauneron's suggestion. This, therefore, is the interpretation that shall be used in this translation.[53]

[53] Aufrère (2012:230–233) uses the phrase *il présente une affinité avec …*(name of deity) – it (the snake) presents an affinity with … (name of deity).

5.2.3.5 Note 5

The possible links between these various deities and the snakes is considered in the notes to each paragraph. In this paragraph of the *Brooklyn Papyrus* the gany snake (refer to 6.4.3 for the probable identification of the gany snake as *Walterinnesia aegyptica*) does the bidding of the god Sobek and one has to wonder what the link between the two could possibly be.

Crocodiles are extremely dangerous and cause many deaths. In ancient Egypt they occupied the marshes, the Nile and the canals. Apart from being a danger to humans, crocodiles also presented a danger to livestock, and there were spells to protect cattle from crocodiles while crossing bodies of water (Ritner 2003c:206), and from very early times people wore amulets to protect themselves from this reptile. Since it destroyed the physical body, being eaten by a crocodile was believed to prevent the person from having an afterlife (Andrew 2003:12). Just as terrifying was the crocodile-headed creature Ammut, who waited to devour the heart of anyone judged to be unworthy at the Final Judgement – the so-called 'second death' (Olsen 2003:41).

Sobek, whose name simply means 'crocodile' (Wilkinson 2003:218), was the most important of the crocodile deities. It is possible that there were numerous crocodile deities but, as Wilkinson (2003:218) says, they were most likely assimilated into the powerful Sobek, who was worshipped throughout Egypt and not only in a specific region. His main cult centres were in places that were close to water, where these dangerous reptiles were abundant, such as at Shedet in the Fayoum, named Krokodilopolis by the Greeks, and Kom Ombo in Upper Egypt (Pinch 2002:200; Wilkinson 2003:220).

Although Sobek was worshipped from Old Kingdom times, it was during the Middle Kingdom Period that he was most revered. Kings of this period often incorporated 'Sobek' into their names (Wilkinson 2003:220), for example, Sobekneferu and Sobekhotep. Later on, he was linked to important gods such as Osiris and Amun, and, as Sobek-Ra, he was particularly important from the New Kingdom Period onwards (Wilkinson 2003:219).

Sobek's characteristics as a crocodile god and god of water earned him epithets such as 'the raging one', 'the one who rose out of the primeval waters', 'the great male being', 'Lord of the floating islands', and 'Lord of the winding waterway' (Pinch 2002:200–201).

On the one hand Sobek, as a patron deity of fishermen and being credited with creating the fish trap, was believed to help with establishing order; but on the other hand he could be seen as an engineer of chaos and a threat to divine order. This threat to divine order was the result of his mutilation of the body of Osiris, and his occasional identification with Seth's crocodile form (Pinch 2002:201). He also has a positive aspect, for as 'He who Greens the Two Banks', an epithet which he shares with Hapy, the god of inundation (Pinch 2002:201), he is also connected with vegetative fertility (Wilkinson 2003:218).

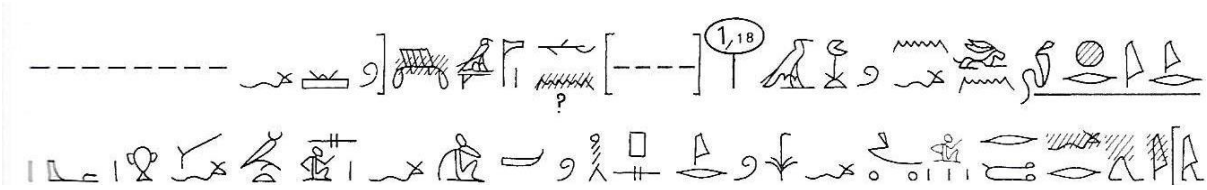
Sobek was also linked to important goddesses, since he was considered to be the son of Neith and the consort of Hathor and the occasional consort of the harvest and fertility goddess Renenutet, who was often represented in cobra form (Pinch 2002:185–6; 200; Wilkinson 2003:219). This gives Sobek at least two serpent links, firstly through Neith (see 5.2.5.6) who could have a serpentine form, and secondly through Renenutet.

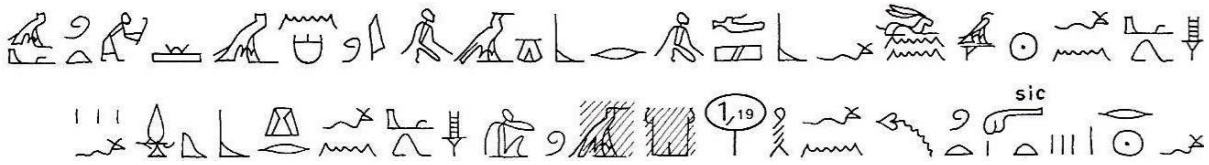
5.2.3.6 Note 6

Sauneron (1989:10) translates this as *inutile d'exorciser contre lui, jamais* (useless to exorcise against it, ever). He explains that the verb *šd,* which ordinarily means 'read, recite', can be extended to include 'exorcise' in this context. In Hannig (2006:911), one does find the meaning to include *Zaubersprüche lessen* (incantation reading). Sauneron's translation does not include a use for the verb *sḫrj,* which means 'exorcise', 'remove' or 'expel' (Hannig 2006:796). The words *šd* and *sḫrj* are not synonymous. The preference here is to translate this clause as 'one does not recite in order to exorcise it'. Nevertheless, whether Sauneron's translation or the current translation is preferred, the prospect for the patient is not good and an exorcism would be pointless.

5.2.4 Paragraph 17 – the *Ikher* snake

Brooklyn Papyrus, page 1, lines 17 to 19





jr jḫr, wnn.f wḫɜ[…] *ḫt* [*n*(*j*)] *nṯr,* [*ɜw.f…; jj*].*f r rmṯ mɜɜ.f sw. jr psḏ.f s*(*j*) *mwt.f ḥr ꜥ. ꜥḥꜥ.f n rꜥ. wnn.f bdš r bɜg, jw nḥm tw m-ꜥ.f r hrw 4. mtwt.f n ḥ*[*kɜ*]*w. ꜥḥꜥ n.f ḫrbqf.*

Regarding the ikher (snake), it is dark[1], (in colour / hue) […] the Wood-of-the-god[2]. Its [length (is) …; (and) it comes] at someone (when) it catches sight of him. If it bites someone, that person's (lit. his) death is at hand. It does the bidding[3] of Ra[4]. If the snake (lit. it) is so weak[5] as to be lethargic, one can save the person from its bite (lit. 'it') up to the third day. Its venom is susceptible (lit. belongs to) to magic[6]. It does the bidding of Kherybaqef[7].

5.2.4.1 Note 1

Presumably *wnn.f wḫɜ* refers to the colour or hue of the snake, for according to Hannig (2006:227) *wḫɜ* means 'to be dark' (*dunkel sein*); also the physical description of the snake tends to be given at the start of each paragraph that discusses each individual snake. Sauneron (1989:12) feels that the word *wḫɜ* is incomplete, but only the determinative seems to be missing because of the lacuna.

5.2.4.2 Note 2

The 'Wood-of-the-god' is a reference to a plant that the snake resembles, either in colour or in form, and it would have been very useful to know what plant the ancient Egyptians called the 'Wood-of-the-god'. This would enable us to interpret the description of the snake more precisely. Unfortunately we do not know what this plant is, and even Sauneron (1989:11) says that he is not aware of any specific plant called 'Wood-of-the-god'.

5.2.4.3 Note 3

For an explanation of the phrase '*ꜥḥꜥ n X* (name of deity)', refer to 5.2.3.4, note 4 of Paragraph 16.

5.2.4.4 Note 4

Once again, one may wonder about the exact connection between Ra and the ikher snake (see

6.4.4), because it is not explained in the text. Ra was one of the most important and ancient of the Egyptian deities (Wilkinson 2003:205), with his cult first attested in the Second Dynasty (Wilkinson 2003:209), and reaching its highest point in the Fourth Dynasty, when the title 'Son of Ra' was adopted by the king as part of the official royal title (Wilkinson 2003:209). As an important creator god who was responsible for sustaining all life, he was worshipped throughout Egypt. His cult centre was the ancient Iunu, which the Greeks called Heliopolis ('City of the Sun') (Pinch 2002:183). As the Theban kings rose to power (1550–1069 BCE), the Theban god Amun became correspondingly more important and merged with Ra as Amun-Ra (Shaw & Nicholson 2002:239).

The name Ra literally means 'sun' (Pinch 2002:183), and it was believed that he was born each morning, to age as the day progressed only to die at sunset. He was called Khepri – 'The One who comes into Being at sunrise', Ra-Horakhty, i.e. Ra merged with 'Horus-of-the Two-Horizons' as, especially, the morning sun and then, as the aged Atum, as the late afternoon sun (Wilkinson 2003:200, 205). This repeated cycle was imagined as a journey across the sky from East to West in the *mandjet* (day boat), while at night his *ba*[54] travelled in his *mesketet* (night boat) through the dangers of the Duat (Wilkinson 2003:206). During his nocturnal journey Ra was protected by numerous benevolent snakes such as Mehen – 'The Coiled One' (Pinch 2002:200), because, as noted in 5.2.2.2, his very existence was continuously threated by the evil serpent of the Underworld, Apep, and his minions. One of Ra's many forms was the Great Tom Cat who slays Apep, the monster serpent of the Underworld, under the *ished* tree (*jšd*)[55] by beheading him (Pinch 2002:107–108).

As a powerful solar deity, Ra features in a number of Egyptian creation myths and because the ancient Egyptians believed that kingship also came into being at creation, he was very closely linked to kingship (Wilkinson 2003:207). Not only was it believed that he had ruled on earth as king, but also that he was regarded as the divine father of the king (Wilkinson 2003:207).

Looking at various depictions of Ra in semi-anthropomorphic form, whether with the falcon head of Ra-Horakhty or with the ram head of his *ba*, he clearly has two eyes, but the sun disc

[54] The *ba* means the 'non-physical attributes' of the person, similar to what one thinks of as 'personality' (Shaw & Nicholason (2002:47).
[55] A deciduous tree of uncertain identity, possibly *Pistacia vera* or *Balanites aegyptiaca* (Hannig 2006:119).

itself could be called the Eye of Ra (Pinch 2002:128). Shaw & Nicholson (2002:95) explain that when the eye of the sun god was considered to exist separately from the god himself it was called the Eye of Ra. The grammatical gender of the word *jrt* (eye) is feminine and divine eyes were personified as goddesses (Pinch 2002:128) and in various myths the goddesses Bastet, Hathor, Mut, Wadjet and Sekhmet become the 'Eye of Ra' (Pinch 2002:71,129,130).

This brings one to a particular myth concerning the Eye of Ra, a narrative that explains how the cobra protectively encircles the sun disc and became the uraeus. At the very beginning of creation, the deities Shu and Tefnut were created first by the creator Atum and soon they went missing in the dark watery matrix of the primordial Nun. Atum sent his Eye to light up the dark waters and locate Shu and Tefnut. The very act of sending out the Eye was believed to be the first sunrise and the moment of unification between Atum and Ra to become the creator sun god (Pinch 2002:128). The Eye eventually returned with the missing Shu and Tefnut but was enraged and distraught to find that she had been replaced because Ra-Atum had generated a new eye in her place. The Eye was eventually consoled when Ra-Atum gave her a new place on his forehead as the uraeus, where she appeared as a coiled cobra. This placement elevated her to a more powerful position above the other deities (Pinch 2002:129).

It is in this myth that a link between Ra and the ikher snake may lie. It is possible for one bitten by the ikher to die fairly rapidly. As the Papyrus reads: *jr psḥ.f s(j) mwt.f ḥr ꜥ* (if it bites someone, that person's death is at hand). Such a death is likely to be caused by a snake whose venom contains a strong neurotoxin that would cause paralysis, in my opinion. One must, therefore, consider it likely that the ikher, which is described as a dark snake, has neurotoxin in its venom. A snake that fits such a description and is found in Egypt is the *Naja haje* (Egyptian cobra) (refer to 6.4.4 for a discussion on the possible identity of the ikher snake).

Nowhere does one find the ikher linked to the Eye of Ra or the uraeus, but the uraeus is a cobra and it is possible that the ikher is too, to my mind, and if this is so, then this could possibly be the link between Ra and the ikher snake. This is not, by any means, intended to infer that the ikher is the Eye of Ra, but, rather, that the venomous ikher snake could be

suitable for Ra to send out to exact punishment on an ordinary individual, in my opinion, whereas the Eye would be sent out to punish mankind.

5.2.4.5 Note 5

The suffix pronoun *f* refers to the snake, and not to the person who has been bitten. In other words, if the snake is weak and lethargic, the venom of its bite may not be as potent as it would be if the snake were vigorous and in good health. Therefore, one has a chance of saving the bite victim. Sauneron (1989:12) says that this line gives the impression that the venom of the snake loses its virulence in winter owing to the lethargy of the snake. This leads to the idea that there is a better chance of saving the victim if the venom is weaker during certain seasons of the year.

However, the potency of venom is actually influenced by other factors that are not seasonal. Firstly, one can be bitten by a venomous snake and have no reaction to the bite as no venom was injected. This is known as a non-envenomed bite. Secondly, more mature snakes can control the amount of venom that they inject into their prey. Thirdly, the reaction to venom can depend on the size of the prey and its sensitivity to the venom (Alexander & Marais 2007:40). Fourthly, potency of venom can depend on the location of the snake. An example is the venom of *Naja nivea* (Cape cobra), which is less potent in the specimens from Botswana or Namibia than in those in the Western Cape of South Africa (Marais 2014:15).

Furthermore, say Alexander & Marais (2007:40), it is possible for snakes of the same species, but from different populations to have venoms of different actions or potencies. Fifthly, the composition of the snake's venom may change according to its age and diet (Alexander & Marais 2007:40). The ikher is clearly a highly dangerous snake. Despite this, the ancient Egyptians observed that there are times when its bite does not kill the person who has been bitten. This may, of course, be due to a non-envenomed bite, in my opinion, whereas an envenomed bite can lead to death without proper care (Alexander & Marais 2007:39).

5.2.4.6 Note 6

It is implied by this line that the venom of this snake qualifies for the use of magic upon it. Sauneron (1989:12) correctly translates the line as: *son venin est (alors sensible) à (l' effet de) la magie* (its venom is (sensitive) to (the effects of) magic).

5.2.4.7 Note 7

We know very little about Kherybaqef. Sauneron (1989:12) points out that he is a Memphite god whose name can be translated as 'He-who-is-under-his-moringa-tree'. Wilkinson (2003:124) and Hart (2005:130) suggest that Kherybaqef (He-who-is-under-his-moringa-tree) is a very old tree god who seems to have been absorbed by the Memphite god Ptah[56] from an early date. It appears that 'He-who-is-under-his-moringa-tree' is one of the many titles of Ptah (Wilkinson 2003:124). Griffiths (1980:31), however, says that 'He-who-is-under-his-baq-(moringa) tree' is a title that occurs often in relation to Horus, Thoth and Seth as well.

It is difficult to say what the specific significance of the moringa tree is, in regard to the ancient tree god Kherybaqef, or, indeed, to the ikher snake. The tree (*Moringa peregrina*), which is native to Egypt's southern Sinai region, the Horn of Africa and the Arabian Peninsula, grew in ancient Egypt and its nuts were used to make oil of *ben*, the Egyptian *bꜣq*, which was used extensively for cooking, cosmetics and medical treatments. In the *Brooklyn Papyrus*, *bꜣq* is used in five snakebite treatments, all of which are treatments for wounds (see 7.2.9, 7.2.12, 7.2.21, 7.2.120 and 7.2.134). Moringa must have had some significance in mythology that we are not aware of to have been of such considerable importance that it was linked to a deity. As suggested by Hart (2005:130), it may possibly have been grown in the temple precinct[57].

The fact that the name 'Kherybaqef' is that of an ancient tree god makes its inclusion in this Paragraph very interesting. It certainly does not seem to concern the god Ptah in this instance. One does wonder if perhaps the ikher was a snake frequently found in trees, or even if it was a snake that was particularly prevalent in the area around Memphis.

The ikher snake is, therefore, connected to two different deities: Ra and Kherybaqef. The ikher snake does the bidding of Ra if the bite victim dies, and does the bidding of Kherybaqef

[56] Although Ptah was chiefly associated with Memphis, he was encountered throughout Egypt and Nubia (Hart 2005:129). His role as a god of craftsmen may well have contributed to his creator-god status (Shaw & Nicolson 2005:230) as Ptah was believed to have formed creation through his heart and tongue [intellect and word] respectively (Hart 2005:129).

[57] An interesting fact, although not related to the discussion, is that at Memphis that there was a temple of Ptah Kherybaqef (Ptah-who-is-under-his-moringa-tree) (Smith 1971:197). Demotic inscriptions representing monkey epitaphs in the Lower Gallery of the Baboon Catacombs at Saqqara reveal that three monkeys were actually mummified in the temple of Ptah Kheybaqef, which was a subsidiary temple; and it would appear that monkeys may have even been kept there along with baboons (Goudsmit & Brandon-Jones 2000:115).

if the victim is saved. However, it is unfortunately impossible to determine what the link was in the ancient Egyptian mind concerning the venom potency or this snake and these two gods.

In two other paragraphs in the *Brooklyn Papyrus*, a snake does the bidding of two different deities, namely of Sobek and Neith in Paragraph 18, and of Seth and Geb in Paragraph 31. In both of these paragraphs the victim can be saved irrespective of which god sent the snake out to do his bidding. Therefore, there seems to be no connection in these two paragraphs between venom potency and the snakes that the deity chooses to send out.

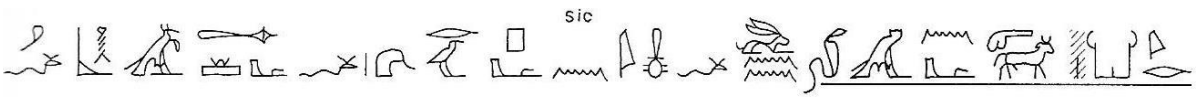
It is interesting that in Paragraphs 16, 21–30, and 32–38 the snake only does the bidding of one deity, while in Paragraphs 14, 15, 19 and 20 there is no deity mentioned at all. The reason for this is not clear at all. The only pattern that does emerge is that the snakes in Paragraphs 26–30 and 33 are all vipers and they are all sent out to do the bidding of Horus. Horus is not linked to any other type of snake.

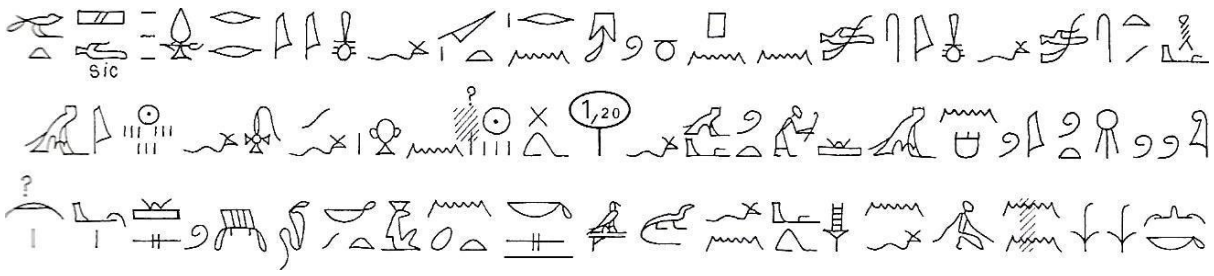
Just as Horus sends out many different vipers, other deities also have more than one snake to do their bidding. Sobek sends out the gany snake of Paragraph 16 and the ka-en-am snake of Paragraph 18; while Ra has the ikher snake of Paragraph 17 and the neki snake of Paragraph 25 to do his bidding. Hathor sends out the nebed snake of Paragraph 21 and the 'snake like the sedeb' of Paragraph 37; and Geb sends out both the ti-am of Paragraph 22 and the male viper of Paragraph 31 to do his bidding. Seth has four snakes that he sends out, being the red henep of Paragraph 24, the male viper of Paragraph 31, the ar-ar snake of Paragraph 32 and the snake in Paragraph 34 whose name is missing because of a lacuna in the text.

The only deities that send out a single snake are Kherybaqef, Serqet and the unknown deities. The chameleon of Paragraph 38 is sent out to do the bidding of Anubis. The possible links between these various deities and the snakes will be considered in the notes to each paragraph.

5.2.5 Paragraph 18 – the *Ka-en-am* snake

Brooklyn Papyrus, page 1, lines 19 to 20





jr kɜ n ˁm, wnn.f mj ⸢jnm⸣ n pˁr. tp.f ˁɜ, nḥb(t).f ḥ(w)ˁt, sd.f mj sd n pnw. r n dmt.f mj j(ɜ)rr(t) šᵀdᵀ‹r› šw. jw nḥm tw m-ˁ.f swɜ hrw 3. [...]*n ḥr.f srf hrw 9. jm.k nn n.f. ˁḥˁ.f n sbk. k(y).s nt. ḥmt ɜw.s mḥ wˁ šsp wˁ.*

Regarding the ka-en-am (snake), its colour is like that of (lit. it is like the colour of[1]) a quail. Its head is big, (but) its neck is narrow (lit. short)[2], (and) its tail is like the tail of a mouse. The opening (lit. mouth) of its bite wound (is) like a small[3], dried grape[4]. One can save (the victim) from it when three days have passed. […][5] A fever will be upon him for nine days. You should not be neglectful of him (lit. grow tired / be lazy towards him). It does the bidding of Sobek[6]. At other times (lit. its other) it does the bidding of Neith[7]. The female[8] (of this snake) has a length of one cubit and one palm[9].

5.2.5.1 Note 1

A word has clearly been omitted between *mj* and *n*, and Sauneron (1989:13) suggests that this word should be *jwn* ('colour'). The scribe tends to give colour as the first part of his descriptions of the various snakes, so it is logical that the missing word deals with colour. The sentence would then read 'it is like the colour of a quail', but in other passages where the scribe clearly uses the word *jnm* ('skin', 'colour of skin' – Hannig 2006:87), for example in Paragraphs 14, 22, 28, 29, 32 and 33, Sauneron strangely transliterates the word as *jwn* – see Sauneron's note 2 on Paragraph 14 (Sauneron 1986:7). It is more probable that the missing word is *jnm* rather than *jwn*.

5.2.5.2 Note 2

Sauneron (1989:142) notes that in this Papyrus the word *ḫwˁ* is used consistently in an abbreviated form, namely *ḫˁ*. The word appears in Faulkner (1986:166) and Hannig (2006:553) as *ḫwˁ,* with a meaning of 'short'. While neither gives any variant spellings, both

concur with a meaning of ‘short’, and in this there lies a slight issue in terms of its use in this line.

Sauneron (1989:142) does not appear to have a problem with the basic meaning of *ḥwꜥ* as ‘short’ when used in connection with length as the opposite of *ɜw* (long), or of height as the opposite of *qɜj* (high, tall), and feels that it should apply equally to width, meaning ‘narrow’ (*étroit*) as the opposite of *wsḫ* (wide, broad), although he does not give this latter example explicitly. The interpretation of *ḥwꜥ* is particularly important in this context because the relevant proportion of the difference in the thickness between the neck and the head of a snake is a very important criterion in the zoological description of any particular snake. For example, the width of the neck, being narrow while the head is broad, is an important identifying characteristic in the case of many vipers. This fact is acknowledged by Sauneron (1989:13) in his note 3, and hence he believes that it is legitimate to interpret the word *ḥwꜥ* as ‘narrow’, rather than ‘short’ in this line.

5.2.5.3 Note 3

šd appears to be a spelling error, as Sauneron points out. If one takes the word to mean ‘small’, as Sauneron does and which fits the context perfectly, then the correct word should be *šr* from *šrr* (Faulkner 1989:270, Hannig 2006:900) or *šrj* (Hannig 2006:900).

5.2.5.4 Note 4

The spelling of *jrr* for *jɜrrt* here in Paragraph 18 appears to be erroneous at first, especially since neither Faukner, nor Hannig has such an abbreviated form, but in Erman & Grapow (vol. 1, 1926:32) one finds the abbreviated spelling  . According to Erman & Grapow (vol. 1, 1926:XIII) this is a later spelling appearing from approximately the Twenty-second Dynasty. This abbreviated spelling occurs again in Paragraph 61a of the *Brooklyn Papyrus*.

5.2.5.5 Note 5

There is a tall sign preceding  (*n*) in the text. It is badly damaged and is therefore not legible. Sauneron (1989:13) comments that this sign, whatever it is, is inexplicable and the (*n*) which follows it, although perfectly legible, makes no sense here, unless one knew what the preceding sign was. These signs do not appear after  in either Paragraph 23 or 78b.

5.2.5.6 Note 6

For an explanation of the phrase '*ḥr n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

5.2.5.7 Note 7

The ka-en-am snake (see 6.3.1) is connected to two deities, namely Sobek (see 5.2.3.5) and Neith. Both of these deities were seen as very powerful and, therefore, potentially very dangerous if offended. Once again, the exact connection in the ancient Egyptian mind between these two deities and this particular snake is unknown to us and speculation seems fruitless. There was, however, a strong mythological connection between Neith and Sobek, to my mind.

Neith was a very ancient deity, who was particularly important in prehistoric and early dynastic Egypt and again in the New Kingdom and especially in the Twenty-sixth Dynasty, when the state capital was moved to Saïs. (Wilkinson 2003:156, 159). During this long period, her mythology kept on evolving, with some myths as late as the Roman Period, giving her a rather complex character (Wilkinson 2003:156). She was one of the deities who emerged from the primeval waters (Pinch 2002:61) and was sometimes even equated with them (Pinch 2002:170). Already in the Old Kingdom, Neith was called the 'mother of Sobek' and the 'Nurse of crocodiles' (Wilkinson 2003:157). In mythology she has a strong connection with crocodiles and snakes, for as the personification of the primeval waters, she was regarded as the mother of snakes and crocodiles 'who are in the abyss' (Pinch 2002:170). It was also believed that when Neith spat into the primeval waters, her spittle turned into the terrible Apep, the monster-serpent who was a threat to the sun god Ra (Pinch 2002:170), but Apep is only attested from the time of the Middle Kingdom (Wilkinson 2003:157). Neith could appear as one of the manifestations of the ferocious 'Eye of Ra' and she could also appear in snake form as a protector of Ra or the king (Wilkinson 2003:157). A festival held at Esna was an acknowledgement of Neith's act in saving the 'newborn Ra' from her snake and crocodile offspring (Pinch 2002:170).

Neith could thus have a serpentine form. The link to Sobek is now apparent as Sobek's mother was Neith. Sobek has a second serpent link, as the occasional consort of the harvest and fertility goddess, Renenutet, who was often represented in cobra form (Pinch 2002:185–6).

5.2.5.8 Note 8

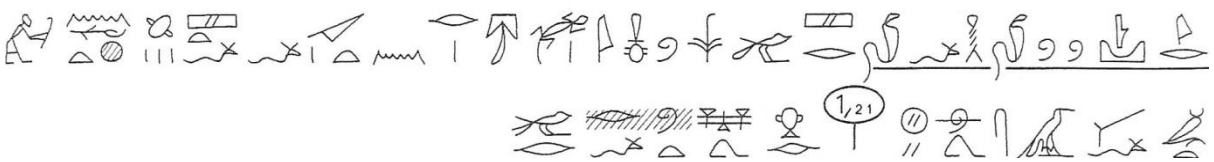
The word  is puzzling at first. The hieroglyph  is unusual and does not appear in Gardiner's sign list[58]. However, Sauneron must have been familiar with this sign as he does not comment on it. The word  does appear in Erman & Grapow (vol. 3, 1929:76) as an alternative Late Egyptian spelling for *ḥmt* with a meaning of *weibliches Tier* (a female animal). This suggests that the phonetic value of  is *ḥm*, a point which is confirmed by Blackman & Fairman (1944:21) who say that 'both  and  have the value *ḥm*'. Furthermore, both of these signs could be used interchangeably for *ḥm* in the spelling of the place named Chemmis in the *Edfu inscriptions* (Blackman & Fairman 1944:21). Further evidence of  representing *ḥm* is found twice in the *London Medical Papyrus* (45, 14^5 and 14^7) and once in the *Berlin Medical Papyrus* (192), in the word *ḥmt* meaning 'uterus' (Von Deines & Westendorf 1962:597–598). One can now conclude with a measure of confidence that *ḥmt ḥfɜw* means 'female of the snake'.

5.2.5.9 Note 9

Sauneron (1989:13) says that the sign which he has given tentatively as  was difficult to transcribe, and concludes that it must be a part of the cubit, i.e. a palm or a digit, or a simple fraction of the cubit such as $^1/_2$, $^1/_3$, $^1/_4$ or $^2/_3$ (Sauneron 1989:14). In Paragraph 21 the length of the nebed snake is a cubit and a half [52.50 cm + 26.25 cm = 78.75cm], and its length is similar to that of the ka-en-am (see 5.2.8). One would expect the female of the snake to be a little smaller, according to Sauneron (1989:14), and hence his conclusion that the sign that was difficult to transcribe is possibly the palm  .

5.2.6 Paragraph 19 – the *Djou-qed* snake

Brooklyn Papyrus, page 1, lines 20 to 21



jr ḏw-qd, ḫf(ɜw) šr sw ʿšɜ. r n dmt.f šft nḫt. mwt.f ɜs. ḥr tw r.f wr.

[58] Gardiner's sign list contains most of the most common hieroglyphs used in Middle Egyptian (Gardiner 1957:438) in which Gardiner explains what the signs represent and illustrates their uses with examples.

Regarding the Djou-qed (snake)[1], it is a small snake, like a lizard[2]. The edge of his swollen bite wound is hard. The bite victim (lit. he) dies quickly. One should keep very far from it.

5.2.6.1 Note 1

One is tempted to read *qd-ḏw* instead of *ḏw-qd,* but this is simply an example of graphic transposition of the signs for visual effect. This description is a good example of the so-called *nfr ḥr* construction, giving a descriptive name to the snake: 'the evil-natured one' or 'the one of evil disposition' (see 6.6.1 for Djou-qed's possible identity). It is interesting to note that in Faulkner (1986:282) one finds the phrase *ḏw qd r,* meaning 'ill-disposed towards'. This snake is also mentioned in the *Harris Magical Papyrus* (BM EA 10042). Many snakes have a name with a descriptive meaning, such as the puff adder (*Bitis arietans*), known for the warning sound it makes created by the exhalation of air; or *Dispholidus typus*, commonly known by the Afrikaans name '*boomslang*' (tree snake) owing to its habit of occupying trees while hunting birds, chameleons and tree-dwelling lizards (Marais 2014:74–75).

5.2.6.2 Note 2

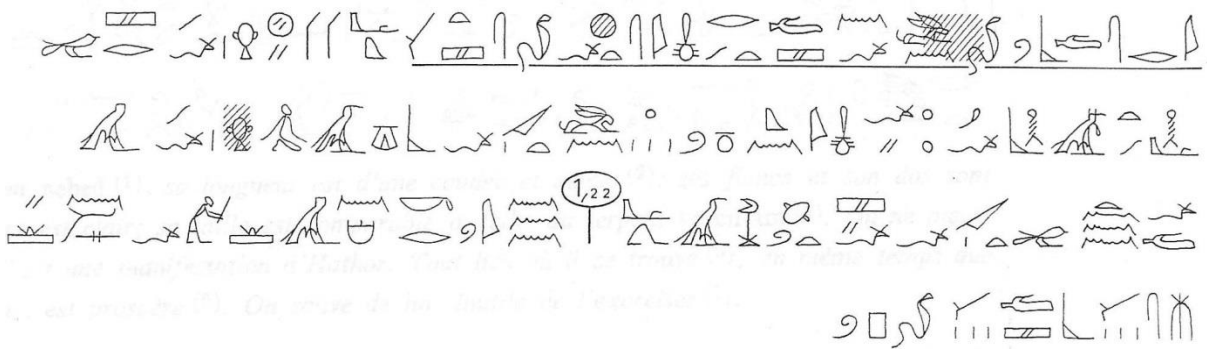
The use of the sign  , F27 in Gardiner's sign list, (Gardiner 1957:464) after the lizard is a bit unusual as one would think that the sign  *ꜥšꜣ,* used as the ideogram for lizard, speaks for itself. However, because the sign  (I1 in Gardiner 1957:475) is frequently used as a triliteral phonogram[59], a determinative is needed to narrow down the possible meanings. It is important to note the fact that the cow hide determinative, F27 (Gardiner 1957:464), in Middle Egyptian at least, generally represents a mammal (Allen 2005a:430), which the lizard clearly is not. Consequently, it was tempting to consider that the sign might be an abbreviated spelling for the word *sꜣb* 'dappled' (Faulkner 1986:210), and, therefore, more precisely describe or determine the type of lizard. However, the word *sꜣb* is usually spelled with the sign  , F28 in Gardiner's sign list (Gardiner 1957:28). It became clear, however, that the determinative  appears again in Paragraph 39 of the *Brooklyn Papyrus* after the words for scorpion and solfugid (camel spider) (see 7.2.1.3, Note 3 for the translation of *jtš*), both of which are arachnids. It is also used in Paragraph 85d as the determinative for the mullet fish. It would appear that the determinative  has a much broader use in this Papyrus and is therefore not confined to indicating a mammal. This same determinative is found in the

[59] A phonogram with three consonants.

London Medical Papyrus (BM EA 10059), in incantation IV, line six, where it follows the name of the *ʿpšʒyt*-insect (Leitz 1999:plate 29).

5.2.7 Paragraph 20– the *Sedeb* snake

Brooklyn Papyrus, page 1, lines 21 to 22



jr sdb, [*wn*]*n.f dšrt mj sḫtf stš ʿq*(*ʒ*)*. ḥr.f šr, ḥ*(*w*)*ʿt nḥb*(*t*)*.f. jrtj.f mj qnw. wn* (*wḫd*) *dmt.f bʒg,* [*ḥr*]*.f m fdt. dmt.f šft, ḫʒʿ mw. jw.k r nḥm.f. n*(*j*) *sj msw-bdš pw.*

Regarding the sedeb (snake), it is red, exactly like the sekhtef[1] of Seth. Its face is small, (and) its neck is short. Its eyes are (yellowish) like orpiment[2]. The one who suffers the bite[3] becomes weak[4], (and) his face is sweaty. His bite wound is swollen, and it exudes fluid. You can save him. It belongs to (the group / family of) mesou-bedesh.

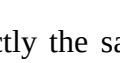
5.2.7.1 Note 1

This paragraph describes the snake's likeness to a snake called 'the sekhtef of Seth' (see 9.2.1.2); and in Paragraph 21, which follows, to the 'sekhtef of Horus' (see 9.2.1.2). These two snakes do not appear in the extant portion of the Papyrus and could well be snakes described in two of the lost 13 paragraphs at the beginning.

According to Sauneron (1989:161), some of the Ptolemaic texts from Edfu frequently mention this snake with a variation of the spelling of its name, namely *sftḫ* instead of *sḫtf*, with a simple transposition of the letters. Sauneron (1989:161) adds that perhaps the *sḫtf* of the *Brooklyn Papyrus* can even be identified with a snake carrying the name of *sptḫ* in the *Papyrus Turin* 54003, $9^{(2)}$, and that this spelling of *sptḫ* is similar to the Ptolemaic form attested at Edfu.

5.2.7.2 Note 2

The colour of the sedeb's (see 6.3.2) eyes is being compared to a yellow mineral or pigment. Sauneron (1989:15) says that the word *qnw* was used to refer to the colour yellow. In both Getty (2016:261) and Faulkner (1986:280) one finds the word *qnjt* with the meaning of 'yellow-eyed', using as a determinative, and *qnjt* with the mineral determinative to mean a 'yellow pigment'.

In Erman & Grapow (vol. 5, 1931:52) the word *qnjt* is found with a variety of spellings, one of which is exactly the same as used here in the *Brooklyn Papyrus*:  , to which a meaning of *ein mineralischer stoff von gelber farbe* (a mineral of yellow colour) is given.

Hannig (2006:929) lists the word *qnjt* with various spellings including  which is similar to what one finds in this paragraph of the *Brooklyn Papyrus*, except that  is used instead of , and he gives a meaning of 'orpiment' (As_2S_3), a yellow mineral.

Minerals could be used for colour pigments and the name of the colour was often the same as the name for the mineral. For example, the colour 'blue' was made from lapis lazuli. The name for lapis lazuli, *ḫsbḏ*, was used to mean the colour as well as the name of mineral (Robbins 2003:58). For the colour 'yellow' two different pigments were used by the Egyptians. One was yellow ochre (*stj*), and the other was orpiment (Harris 1961:153).

5.2.7.3 Note 3

On analogy with Paragraphs 25 and 28, Sauneron (1989:14) concludes that the scribe has left out a word between *wn* and *dmt.f*, and suggests that the sign  as an abbreviated writing for the word *wḫd* 'to suffer' was apparently omitted. The phrase *wḫd dmt.f* can be translated as 'the one suffering / who suffers the bite wound', or 'the sufferer of the bite wound'.

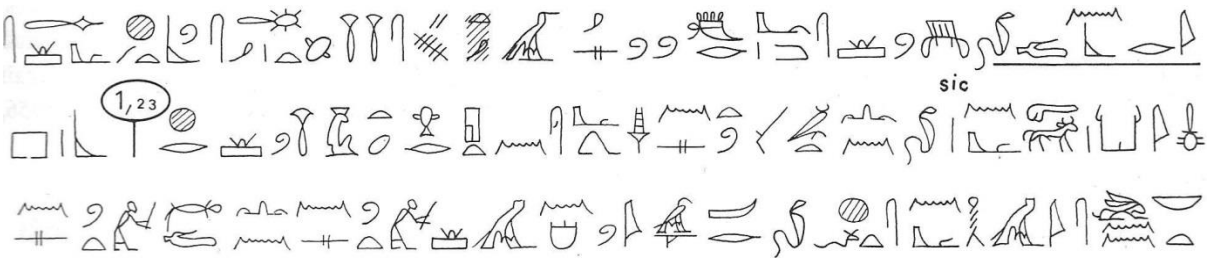
5.2.7.4 Note 4

The scribe frequently writes the word *bɜgj* as *bgɜ*, transposing the signs.

Hannig (2006:260) gives  as a variant spelling for *bɜgj* in which the signs and are transposed, so it must have been a common enough variant.

5.2.8 Paragraph 21 – the *Nebed* snake

Brooklyn Papyrus, page 1, lines 22 to 23



jr nbd, ɜw.s mḥ gs. ḏrww.s ɜ[t].s wɜḏwɜḏ. ḫt.s wbḫt. ʿɜ.s mj kɜ-n-ʿ(m). nn mwt tw n.s. ʿḥʿ.s n ḥwt-ḥr. wɜḏw ḫr b(w) nbt wnn.s, jm ḥnʿ sḫtf ḥwr. jw nḥm tw n.s. nn šd tw n.s.

Regarding the nebed (snake), its[1] length is a cubit and a half. Its sides and back[2] are green[3]. Its stomach is light (in colour). Its size is similar to (that of) the Ka-en-a(m)[4] (snake). One will not die of its bite (lit. it). It does the bidding[5] of Hathor[6]. It is green[7] everywhere near where it lives, together with the sekhtef of Horus[8]. One can indeed save the person from its bite / venom. One need not recite spells[9] against it.

5.2.8.1 Note 1

In Paragraphs 14–20 of the *Brooklyn Papyrus*, the 3rd person singular masculine suffix pronoun has been used to refer to the snake. Now, in Paragraph 21 the feminine suffix pronoun is used. It is interesting to note that in two other paragraphs where the particular snake is associated with a female deity, as here, the feminine suffix pronoun associated with the snake replaces the masculine. The other paragraphs in the *Brooklyn Papyrus* where this occurs are Paragraphs 23 (Serqet), and 24 (an unnamed, apparently female offspring of Seth). Although the latter is not a goddess, the use of the feminine suffix pronoun instead of the masculine still fits in with this apparent pattern. In Paragraph 37, however, where Hathor is again the deity associated with a particular snake, the masculine suffix is used again throughout.

5.2.8.2 Note 2

Regarding the word *ɜt*, it was clearly known to Sauneron, but it does not appear in Faulkner.

The word *ꜣt* is an apparently later form of what was originally *jꜣt,* for Hannig (2006:19)classifies  ; ; and  as *neuägyptisch* (i.e. belonging to the New Kingdom).

Sauneron (1989:15–16) does, however, hesitate over the exact meaning of *ꜣt*: *on peut hésiter sur le sens de ꜣt.* He debates whether it has a restricted meaning, referring to the back of the snake's head; or a broader meaning, referring to the back of the snake. One can look at Paragraph 37 for a comparison: *jnw ḏꜣj* [*m*] *ꜣt.f r-mn-m sḏ.f* (a pattern extends along its back as far as the tail). One meaning of *ꜣt* given in Hannig (2006:19) is 'spine', 'backbone'. Since the spine runs the length of the snake's body, Sauneron, therefore, correctly applies *ꜣt* in the broader context when he refers to the back of the snake as being green.

5.2.8.3 Note 3

The word *wꜣḏwꜣḏ* meaning 'green' (Hannig 2006:191) is not a common one, and matters were complicated by the abbreviated spelling used here and by the unusual determinative. Sauneron (1989:15, note 3) correctly read *wꜣḏwꜣḏ* as 'green', seeing *wꜣḏwꜣḏ* as the equivalent of *wꜣḏ*. The sign  , which causes a little confusion here, is not commonly used as a determinative for 'green'.  appears in Hannig (2006:191) with an uncertain meaning of '*grüne Geichtsfarbe*' (green face-paint). In this, there might perhaps be a possible link between and the colour green, but Hannig does say that the word only occurs in medical terminology, referring to the patient, and that the meaning is uncertain. It is interesting to note that appears again in Paragraph 38 of the *Brooklyn Papyrus* when describing the green colour of the chameleon.

5.2.8.4 Note 4

The hieroglyphic sign for *m* appears to have been omitted by the scribe. The correct hieroglyphic spelling of the name ka-en-am occurs in Paragraph 18 of the *Brooklyn Papyrus*.

5.2.8.5 Note 5

Hathor was one of the earliest and most important goddesses of ancient Egypt. Her origins, according to Wilkinson (2003:139–140), may well have been in the predynastic times. However, it is not entirely clear if this early worship was directed at Hathor, who was often represented as a cow, or another cow goddess, Bat (Hart 2005:62), who may be the bovine

deity on the Narmer Palette and whose iconography was later assimilated into that of Hathor's (Vischak 2003:158). Undeniably, worship of Hathor existed from the Old Kingdom Period, according to archaeological and textual evidence (Hart 2005:62), right into Roman times (Vischak 2003:158).

Hathor was a goddess who filled many roles, and only a few of the important ones are discussed here. Hathor was a symbolic mother of the king, a role also fulfilled by Isis, says Hart (2005:62), and in one of her most important representations in the form of a cow, she functioned as a royal nurse and protector of the king, according to Wilkinson (2003:141).

In addition, Hathor was regarded as a mother and consort of Horus and her name *ḥwt-ḥr* literally means 'house of Horus' (Wilkinson 2003:140). Hathor's role as a healer may stem from her healing and restoration of Horus' eye after Seth had ripped it out during an altercation (Wilkinson 2003:140). Hathor's main cult centre was at Dendera (Wilkinson 2003:140) where mud brick cubicles were constructed in the temple precinct to receive sick visitors. Here, according to Hart (2005:64), the sick would be treated with water from the sacred lake. It seems the temple precinct was some kind of a healing sanctuary, no doubt connected to Hathor's role as a healer.

Not only was Hathor linked to the pharaoh and to Horus, but also to the all-important sun god Ra as his consort, in the *Contendings of Horus and Seth*[60], or as his daughter in the myth of the Eye of Ra (Vischak (2003:160). Despite these beneficent roles of protector and healer, and also goddess of love, music and dancing, Hathor had a chaotic and vengeful aspect too. When this side of her nature appeared, she had to be prevented from destroying all of mankind (Wilkinson 2003:140). In this myth of the Destruction of Humankind, Hathor is sent by Ra to punish humanity but, realising Hathor's destructive potential, he changes his mind. By flooding the lands with beer tinted red to imitate blood, he draws Hathor's attention away from her destructive task. She was also one of the goddesses believed to actually be the 'Eye of Ra' (Wilkinson 2003:140).

[60] The *Contendings of Horus and Seth* is a long New Kingdom narrative that tells of the conflict between Horus and Seth. There are numerous versions of this narrative, which was probably read aloud as entertainment, and deals with the problem of succession (Pinch 2002:29).

Another important role filled by Hathor was as a goddess of foreign lands. She was worshipped from Byblos on the Phoenician coast to Punt (possibly Eritrea) south of Sudan near the Horn of Africa (Wilkinson 2003:143). As such, she had the titles 'lady of Punt', and 'lady of Byblos'. Her latter title came about during the Middle Kingdom Period and archaeological evidence reveals that a cult to her existed in Byblos alongside that of the Phoenician Astarte (Hart 2005:65). Another title held by Hathor was 'mistress of Turquoise' (Wilkinson 2003:143) as she was the protector of miners in the Sinai region where mining for turquoise and copper took place, and evidence of temples to her has been located there.

The plant associated with Hathor was the papyrus, as such plants are found in marshy areas and swamps where the wild cattle roamed (Hart 2005:62). Hathor was also closely linked to the sycamore tree, particularly in Memphis, hence her title 'lady of the Sycamore' (Wilkinson 2003:143). According to Vischak (2003:158), Hathor was associated with vegetation in general and, as one of several tree goddesses, her role was to offer shade and nourishment to the deceased.

Interestingly, an illustration of a Hathor-headed column from inside her temple at Deir-el Medina is found in Oakes (2006:166). Stretching up along the sides of the column towards the Hathor-head capital are representations of Meretseger[61], the cobra goddess and patron deity of the workers who resided at Deir el-Medina. According to Oakes (2006:166), Meretseger was another aspect of Hathor. If this is the case, it does provide a link between Hathor and snakes.

However, the association between the nebed snake specifically and the goddess Hathor is uncertain. There may be some relevance in magic or a mythical event unknown to us, or even some relevance to a locality. Sauneron (1989:16) sees a link between Hathor and the green colour of the snake: *sa couleur s'accomode de ce context vegetal. La mention d'Hathor permit peut-être d'évoquer les zones marécageuses auxquelles le nebed serait associé* (its colours have adapted to the vegetation surroundings. The mention of Hathor perhaps allows an evocation of the marshy zones with which the nebed snake would be associated). Sauneron (1989:16) further views this link as one that encompasses Hathor's association with papyrus plants, which would grow in marshy areas, a location in which this snake would

[61] The cobra goddess Meretseger, whose name means 'lover of silence', was believed to live in the mountains surrounding the Valley of the Kings where she protected the royal tombs (Hart 2005:91).

dwell, and indeed papyrus plants were considered to be sacred to Hathor (Vischak 2003:161; Hart 2005:62). Sauneron (1989:16), therefore, argues for the possibility that the nebed is a snake of the *Natrix* genus. The only snake of the *Natrix* genus found in Egypt today is *Natrix tessellata* (El Din 2006:251), the diced water snake, which is olive green in colour with black dots on its back. To my mind, the snakes of the *Natrix* genus do not seem to fit the description of the nebed, however, and one must bear in mind that new irrigation methods and the construction of the Aswan Dam have had an impact on natural vegetation along the Nile, and this impact would extend to species of wildlife that may no longer exist there (Biswas & Tortajada 2012:383).

The possibility of location providing the association between the nebed snake and Hathor is quite valid, and could possibly be linked to the Land of Punt, as Hathor was a goddess of foreign lands (Pinch 2002:138), hence her title *nbt Pwnt*, Lady of Punt (Gilli 2010:56). There are numerous arboreal green snakes found in the region of Punt, presuming that Punt is located in the region of the coastline of Eritrea and Djibouti, and more inland into Ethiopia (see 6.1.3.2 on the possible location of Punt).

One example is the *Atheris hispida* (Hairy bush viper), a green viper with a shaggy, hairy appearance due to its heavily keeled scales. Even the name 'nebed' might provide a clue as to the identity of the snake, for Hannig (2006:429) gives the meaning of the noun *nbd* as *frisur* (a hairdo). (See 6.3.3 for a further discussion on the possible identity of the nebed). The point here is that the nebed could well be aligned with Hathor, in my opinion, because of her role as Lady of Punt, presuming that the nebed was a green snake found in the Punt region.

As much as the greenness of the nebed snake led to the association with Hathor, so too the location might indeed have played a role in the association and it might perhaps be for this reason that this particular snake was linked to Hathor, to my mind. Although the real reason for the association is not known to us, there undeniably was an association between Hathor and the nebed snake in the ancient Egyptian mind.

5.2.8.6 Note 6

For an explanation of the phrase '*ḥ*ʿ *n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

5.2.8.7 Note 7

According to Sauneron (1989:16) it appears that a correction was made to the original hieratic text on the Papyrus. A red point had been placed above the text on the papyrus scroll following and the word *ḫr* following this had been erased. The meaning of this line is thus uncertain. In his translation Sauneron (1989:15) offers an alternative interpretation for the line: *wꜣḏw ḫr b*(*w*) *nbt wnn.s, jm ḥnꜥ sḫtf ḥwr* of *tout lieu òu il se trouve, en même temps que le sekhtef d'Horus, est prospère* (every place where it is found, at the same time as the sekhtef of Horus, it prospers / thrives). This is suggestive of the snake being a good omen as everywhere that it is found is prosperous and thriving. The two possibilities considered by Sauneron (1989:16) are, therefore, the following: firstly, everywhere frequented by this snake is prosperous. In this sense it can be considered a lucky omen. Secondly, it is green everywhere that this snake is found, i.e. this snake is only found where there are green plants.

In Paragraph 38 one finds  when describing the colour of the chameleon, just as *wꜣḏwꜣḏ* is used as the colour of the snake's back. However, a bit further on the word  (*wꜣḏw*) is used to describe the green of the habitat, while in Paragraph 27,  is used when discussing a coloured marking on the snake.

5.2.8.8 Note 8

The way the name of Horus is spelt here as  posed a problem, as it is not one of the more regular spellings, such as  , found in Paragraphs 28 and 29 of the *Brooklyn Papyrus*. It is interesting to note that this unusual spelling occurs again in Paragraphs 26, 30 and 33, and is, therefore, apparently the scribe's preferred spelling. Sauneron translates  (which one would transliterate as *ḥwr*), as 'Horus'. It may be that one spelling is older than the other and may have appeared in the work being copied by the scribe who preferred to use a spelling of the word that he was more familiar with. Allen (2005a:6) warns that the hieratic script was more representative of colloquial language than the hieroglyphic system of writing, especially after approximately 1600 BCE. Hieratic would, therefore, reflect more regional differences in vocabulary and pronunciation and consequently spelling, and it is possible that this might account for differences in spelling and vocabulary in the *Brooklyn Papyrus*. Allen (2005a:29) also points out that the ancient Egyptians had no standardised

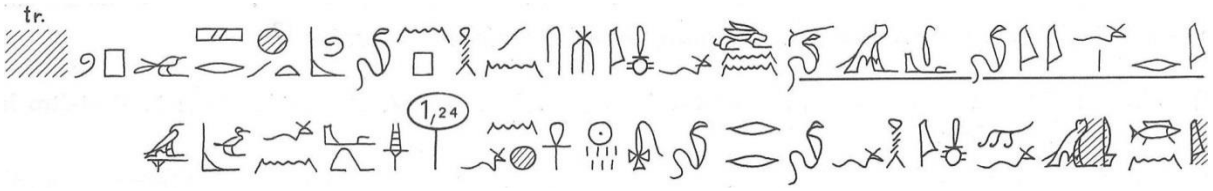
spelling system, even with hieroglyphics. The same word may be spelled differently in different texts, or even within the same text itself.

5.2.8.9 Note 9

Refer to Paragraph 16, note 5.2.3.6, note 6, regarding the meaning of *šd*.

5.2.9 Paragraph 22 – the Asiatic viper

Brooklyn Papyrus, page 1, lines 23 to 24



jr fy tw ꜥ[ɜ]m, wnn.f mj ms n ḥnp wbḫ. šr pw […]. [*jnm*].*f mj ḫf*(ɜw) *rr. srf hrw 7, ꜥnḫ.f. ꜥḥꜥ.f n gb*.

Regarding the Asiatic viper[1], it is like the young of a light coloured (pale) henep (snake). It is small […]. Its skin (colour) is similar to (that of) the rer snake[2]. (There will be) a fever for seven days, (but) the person (lit. he) will live. It does the bidding[3] of Geb [4].

5.2.9.1 Note 1

Sauneron (1989:16, 150) translates the name of this viper as *la vipère asiatique* (the Asiatic viper), and *celle de l'Asie* (that [female one] of Asia). He seems to read the first part of the snake's name, the sign 𓏲, as a feminine singular demonstrative pronoun, when in fact it is a variant spelling of the impersonal pronoun or *tw* (Hannig 2006:989). The second part of the snake's name is *ꜥm* which is most likely intended to equate to *ꜥɜm* (Asiatic).

Sauneron (1989:17) believes this snake to be the Persian horned viper (*Pseudocerastes persicus fieldii*) (see 6.3.4), which is highly likely. However, he also sees it as the female of the ka-en-am snake in Paragraph 18.[62] This is a problem for two reasons. Firstly, the masculine suffix pronoun is used in the text when referring to this viper, and whereas the

[62] It must be noted that although Sauneron believes that the ka-en-am is a Persian horned viper, it may, in fact, be *Cerastes cerastes* or *Cerastes gasperetti*.

suffixes *.f* and *.s* are frequently interchangeable, this would not be the case when the subject is definitely feminine. Secondly, the sign  here represents the impersonal pronoun and not the feminine demonstrative pronoun.

The name of this viper should be understood to be 'Asiatic viper', literally the 'one' of Asia. One cannot be certain if the name should be pronounced *tj-ꜥ3m* or *tw-ꜥ3m*.

5.2.9.2 Note 2

The rer snake is not the subject of any of the extant paragraphs in the Papyrus, so it may be the name of a snake in one of the lost first 13 paragraphs (see 9.2.1.2).

5.2.9.3 Note 3

For an explanation of the phrase '*ꜥḥꜥ n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

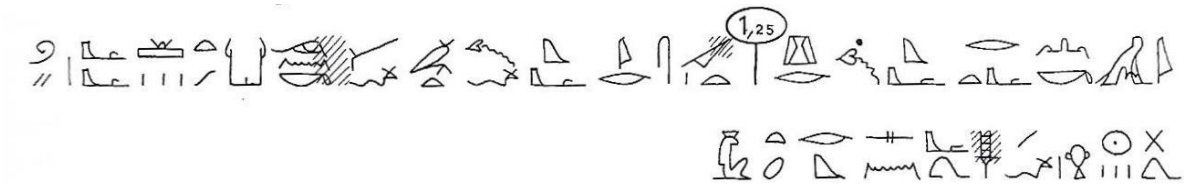
5.2.9.4 Note 4

Geb was a powerful and important earth god, and consort of Nut, goddess of the sky, and a part of the Heliopolitan Ennead (Pinch 2002:135). He could be a rather fearsome figure as one who swallowed the dead (Pinch 2002:135) or kept them prisoner (Hart 2005:59), and Geb's laughter was said to cause earthquakes (Hart 2005:59).

The link between Geb and snakes is quite simple. Geb was known as the controller of earth snakes (Pinch 2002:81) and he was instructed by Ra to make sure that the serpents which lived under the earth did not abuse their power (Pinch 2002:75). The link between the Asiatic viper specifically and Geb is not known.

5.2.10 Paragraph 23 – the *Henep* snake

Brooklyn Papyrus, page 1, lines 24 to 25



jr ḥnp, wnn.s ḥḏ r ḏr.s mj [ʿšɜ] *ḥḏ. nḥbt.s ḥ(w)ʿt, jrtjwj.s nḥɜ. šrj* [*ps*]*ḥ.s, jbḥ.s mj jbḥw* 4 *nt mjt. sd.s wmt. srf hrw 9. ḫɜḫ n s*(*j*) *hmwt. jm.k rdjt qʿ ḫr*(*j*) *dmt.s. jr qʿ.f mwt.f. jr n.k kɜt ʿwj, swɜ hrw 3 ḥr.f. ʿḥʿ.s n* (*s*)*rqt*

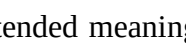
Regarding the henep (snake), it is completely light (in colour), like a pale lizard. Its neck is short / narrow[1], its eyes protrude[2]. Its bite is small, (for) it is like the four teeth of a female cat. Its tail is thick. (There will be) a fever (or inflammation) for nine days. Hurry[3] to the person (with) medical treatments (lit. the crafts)[4]. You must not allow (him) to vomit as a result of (lit. under) the snake's (lit. its) bite. If he vomits he will die. Use both hands[5] for the treatment[6] for three days (lit. until three days pass by). This snake (lit. it) does the bidding of[7] Serqet[8].

5.2.10.1 Note 1

For the interpretation of the word *ḥwɜʿt* as 'narrow' rather than 'short', refer to 5.2.5.2, note 2 for Paragraph 18 of the *Brooklyn Papyrus*.

5.2.10.2 Note 2

The word  describes the eyes of this snake, which are notable in some way. The word *nḥɜ* appears in the *Ebers Papyrus* (paragraphs 350, 407 and 383) where it suggests a disease of the eye. In this regard, Sauneron (1989:29) says Ebbel believed that this eye disease may be trachoma. *Ebers* 350 reads: *k.t n*(*y*).*t dr nḥɜ*(*w*).*t*, which Lalanne & Métra (2017:119) translate as *autre (remède) pour chaser ce qui est derange dans les yeux* (another (remedy) to expel that which troubles the eyes). Lalanne & Métra (2017:119) refer to Ebbel in their footnote, mentioning his belief that this may refer to the granulations of trachoma. Similarly, in *Ebers* 407 one finds *k.t n*(*y*)*t.t dr nḥɜ*(*w*).*t – autre (rèmede) pour chaser un derangement* (another (remedy) to expel a disorder), (Lalanne & Métra 2017:129); and then in *Ebers* 383 is *k.t pḫrt n*(*y*).*t dr nḥɜ*(*w*).*t m jt.ty – autre rèmede pour chaser une chose derange dans les yeux* (another remedy to expel a troublesome thing in the eyes) (Lalanne & Métra 2107:125).

In Hannig (2006:445), one finds *nḥɜ* with a meaning of *unebenheit* (unevenness). This is echoed in Von Deines & Westendorf (1961:471) where *nḥɜ* means *uneben* (uneven, bumpy), or *unruhig* (irregular, uneven). These words describe the texture of a surface. None of the words use  , (D6 in Gardiner 1959:450) as a determinative, for they are not limited to a description of the eye; and the meanings of *nḥɜ*, which suggest an illness, do not seem to fit with the intended meaning of  in Paragraph 23 of the *Brooklyn Papyrus*. There is no reason to describe a snake with unhealthy eyes, but there is something about the eyes of this snake that is different. It is not colour, so  must relate to form. Sauneron (1989:18) offers a plausible solution with his interpretation of *nḥɜ* in the meaning of 'uneven' as describing the eyes of the snake as not being even with the surface of its face, in other words, this snake's eyes are noticeably protuberant – they bulge. The bulging eyes of the snake appear to be constantly watchful and awake.

5.2.10.3 Note 3

Sauneron translates *ḫɜḫ n s*(*j*) *hmwt* as *essaie sur lui la technique* (try the technique on him), and he (1989:18) compares *ḫɜḫ n s*(*j*) *ḥmwt* with *jr n.f ḥmt* in Paragraph 14. He aligns *ḫɜḫ* with *wḥɜ* (to seek) and allocates a meaning to it of *essayer* (to try, to attempt) based on *wḫɜ* being a late Egyptian parallel to *ḥḥ* (to seek, search for). In his interpretation of *ḫɜḫ* as *essaie*, Sauneron (1989:18) justifies his interpretation by saying that as there is a risk of death, the practitioner can only attempt to heal the bite victim. However, *ḫɜḫ* has a meaning of *schnell sein* (to be fast, speedy), in Hannig (2006:627), and 'speedy' or 'hasten' in Faulkner (1986:185). This conveys the sense of urgency required in treating a venomous snakebite, hence the use of the word 'hurry' for *ḫɜḫ* in this current translation.

5.2.10.4 Note 4

The word *ḥmt* refers to a 'skill' or 'craft' (Faulkner 1986:170; Hannig 2006:570). The interpretation of *ḥmt* in this paragraph as a skill or craft would be equal to a medical treatment.

5.2.10.5 Note 5

The reference to using both hands for the treatment seems to suggest a manual application of some sort. The treatments for a henep bite in Paragraph 78a and b of the *Brooklyn Papyrus*

include the application of a compress and a tonic which is taken for three days. The use of 'two hands' would imply massage in addition to the use of the compress and tonic.

5.2.10.6 Note 6

The word *kɜt* means 'work', 'craft', or 'profession'. In the context of this Paragraph this would refer to a medical treatment of sorts, synonymous with *ḥmt*.

5.2.10.7 Note 7

The scribe has omitted  at the start of Serqet's name.

Serqet, whose name *Serqet hetyt* means 'she who causes the throat to breathe (Wilkinson 2002:234), was first attested in the First Dynasty on a *stela* from Saqqara (Hart 2005:142). Serqet was a goddess of snakes and scorpions (Ritner 2003a:195) who was usually represented as a woman with a scorpion on her head (Pinch 2002:189).

One of her most important roles, according to Hart (2005:142), was her link to the funerary cult, in which she was responsible for the protection of the god Qebehsenuef who guarded the intestines. Her epithet, in this context, was 'lady of the beautiful house' which, say Hart (2005:142) and Wilkinson (2003:234), referred to her link with the tent of the embalmer. Along with Isis, Nephthys and Neith, she guarded the canopic chest with the internal organs of the deceased which were contained in four canopic jars. Serqet also appears in the Old Kingdom *Pyramid Texts* where she guards the body of the dead king (Wilkinson 2003:233).

In another important role, Serqet was a defender of the sun god, protecting him from the terrible underworld serpent Apep (Pinch 2002:189). Snakes were a threat to order so her role of protecting the sun god would help to maintain order. Serqet was also the guardian watching over a dangerous part of the pathway in the *Book of Two Ways* (Hart 2005:142).

Serqet fulfilled a mother goddess role as, according to the *Pyramid Texts* (PT1427), she nursed the king (Wilkinson 2003:234), and was the mother of Nehebu-Kau, a serpent god (Wilkinson 2003:235). Furthermore, Serqet was present at the birth of Horus, and, along with Hathor, assisted Isis with his early care in the marshes (Pinch 2002:27). When Horus was bitten by a snake (or stung by a scorpion, in some versions of the myth) in the absence of Isis,

Serqet was one of the goddesses that Isis appealed to for aid when she returns to find Horus deathly ill (Pinch 2006:145).

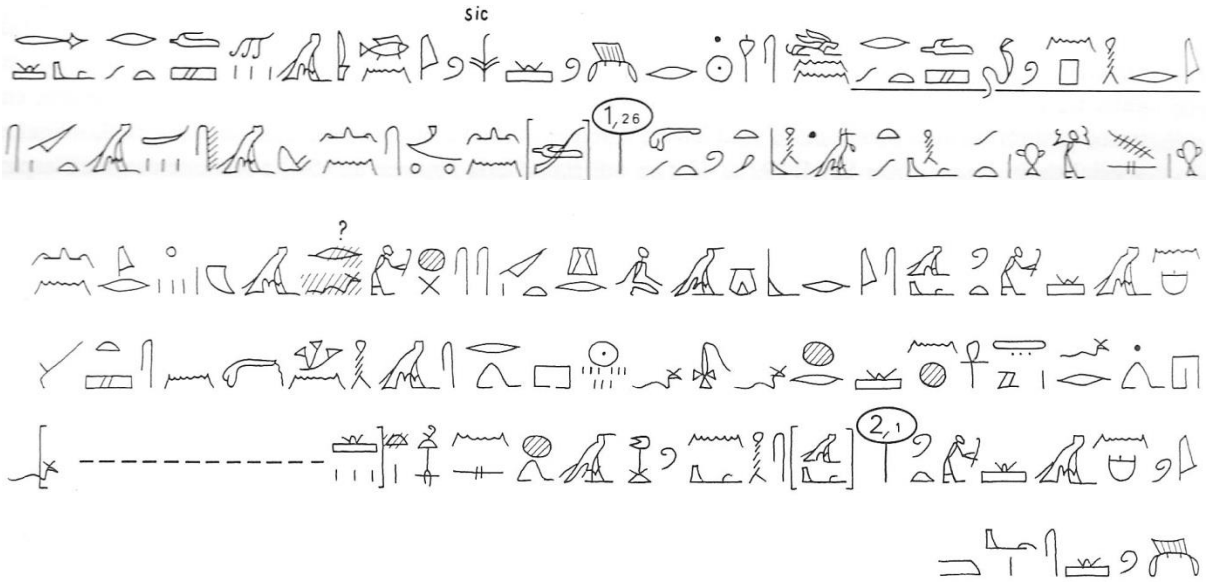
The link between the goddess Serqet and the henep snake is that Serqet is named in Paragraph 80b of the *Brooklyn Papyrus* as being the 'mother of the henep' (Sauneron 1989:109). This may be the reason that Serqet has chosen the henep snake to do her bidding. See 6.3.5 for the possible identity of the henep snake.

5.2.10.8 Note 8

For an explanation of the phrase '*ḥ n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

5.2.11 Paragraph 24 – the Red *Henep* snake

Brooklyn Papyrus, page 1, line 25 to page 2, line 1



jr ḫnp dšrt, wnn.s ḥḏ r ꜣw ⌜*sw*⌝*.*(*s*)*, jnm dšrt šꜣ ḥr jꜣt.s, qꜣj ḥr* (*ḥꜣ*)*t, ḥ*(*w*)*ᶜt nḥbt, wmt* [*sd*]*. nn mꜣꜣ.s nn sdm.s. jbḥw 3 m dmt.s. nḥm tw m-ᶜ.s. jr bgꜣ*(*=bꜣg*) *ḫr*(*j*) *dmt.s, sḫt* [*r.f*] *m ḥmt. jr nn hꜣj.f r tꜣ ᶜnḫ. ḥr.f srf hrw 9. prj.s m ḫnn n stš. jw nḥm tw* [*m-ᶜ*]*.s ḫnᶜw ḫꜣḥ n.s hmwt* […]*f ᶜw.s mḥ gs.*

Regarding the red henep (snake), it is pale along its[1] entire length, (but) there are abundant

red markings upon its back[2]. The front of the face is raised (lit. high), the neck is narrow (and) [the tail] is thick[3]. It does not see, (and) it does not hear. There are three punctures (lit. teeth) in its bite[4]. One can save (the person) from it. If (he) is weak as a result of its bite, strike [his mouth][5] with copper. If he does not collapse to the ground, (he will) live[6]. He will have a fever for nine days (lit. a fever will be on him). The snake (lit. it) comes from the phallus of Seth[7, 8]. One can save (him) from it, with quickly applying the treatment to it. […] Its length is a cubit and a half.

5.2.11.1 Note 1

Sauneron (1989:20) correctly points out that *sw* is an error. The text should read *ꜣw.s,* in other words the suffix pronoun should have been used instead of the dependent pronoun. There is also a question of grammatical gender here and Sauneron (1989:20) says that, unlike most names of snakes, the word *henep* is considered to be grammatically feminine.

5.2.11.2 Note 2

Sauneron (1989:20) translates this as *il y a des taches rouges en abundance sur son dos* (there are red spots in abundance on its back). It is clear that this is a pale snake with red markings upon its back, but the text does not specify the type of markings. They could be spots, patches, blotches or stripes.

5.2.11.3 Note 3

Sauneron (1989:20) has restored this missing word (*sd*) following the pattern of description in Paragraphs 18 and 28. The body of the snake is described in the order of: head / face; body then tail. In Paragraph 28 one finds the same description as here: *wmt sd*.

5.2.11.4 Note 4

This probably means that the bite leaves three puncture wounds. It is an uneven number and perhaps the bite studied from a particular snake only left three puncture marks. Sometimes when a snake bites a fang can break off. Maybe this specific snake had an unfortunate incident and left a fang behind in its prey before biting a human victim – hence only three marks and not four.

5.2.11.5 Note 5

Traces on the original hieratic text indicate that the unclear signs could be *r.f* (his mouth) (Sauneron 1989:21).

5.2.11.6 Note 6

The translation provided by Sauneron (1989:20) of *jr nn hɜj.f tɜ ʿnḫ* is *s'il ne vomit pas, il vivre* (if he does not vomit he will live). The justification for this translation, rather than the literal meaning of 'if he does not fall to the ground, he will live' is that *hɜ r tɜ* may be a figure of speech used to refer to the act of vomiting. Sauneron (1989:21) bases this on readings in the *Papyrus Ramesseum IV* (C14 and 29). This meaning, linked to the readings in the *Papyrus Ramesseum IV*, is also referenced in Von Deines & Westendorf (1962:561), where *ḥʿj r tɜ* means *zu boden abgehen* (it leaves, or exits, to the ground). However, a literal meaning here remains possible. The striking of the victim and his ability to remain standing seems to be a test of physical strength, enabling the one providing assessment and treatment to be able to observe what degree of weakness may be present in the victim. For this reason *jr nn hɜj.f tɜ ʿnḫ* holds the literal meaning in the current translation.

5.2.11.7 Note 7

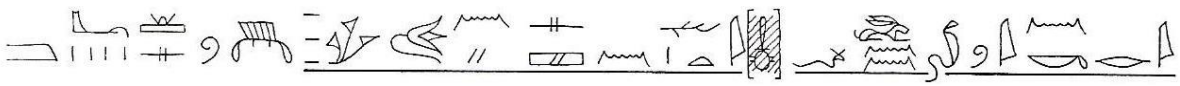
Interestingly the Papyrus uses the old variant spelling of the name Seth (Faulkner 1986:254). This may support the idea that the original papyrus from which this copy was made is quite old.

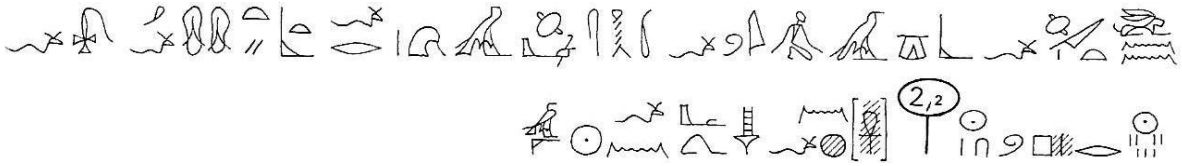
5.2.11.8 Note 8

The snake of this paragraph appears to be a female offspring of Seth. The association between the henep and the female offspring of Seth may be Seth's link to the colour red (Sauneron 1989:21). See 5.2.18.3, note 3 on Seth. See 6.3.6 for the possible identity of the red henep snake.

5.2.12 Paragraph 25 – the *Neki* snake

Brooklyn Papyrus, page 2, lines 1 to 2





jr nkj, wnn.f **[***m***]***j ḫt n sšn. ȝw.s mḥ 4½. wnn wḫd dmt.f bȝg. jw.f tḥs m tp.f r tbwtj.f. srf hrw 7 r pw hrw 11, ꜥnḫ.f. ꜥḥꜥ.f n rꜥ.*

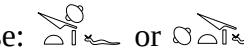
Regarding the neki (snake), it is like the stem of a lotus flower[1]. Its length is four and a half cubits. The one suffering its bite becomes weak[2]. He (*tḥs*)[3] from his head to the soles of his feet. (There will be) a fever for seven days, or even for eleven days, (but) he will live. It does the bidding of[4] Ra[5].

5.2.12.1 Note 1

The word *ḫt* is best translated as 'stem' in this context, rather than 'wood'. The photograph below (figure 10) illustrates what the author of the Papyrus is probably referring to. The stems on the left, in particular, resemble a snake rising up out of the water, as Sauneron (1989:21–22) suggests in his note 4.

Figure 10: lotus stems[63]

5.2.12.2 Note 2

See 5.2.7.3, note 3 regarding the use of the sign  and its transliteration as *wḫd*, to give the reading of *wḫd dmt.f* (the one who suffers its bite). In Paragraph 20 the sign has been omitted from the phrase:  , but here, in this paragraph, and also in Paragraphs 28, 32, 34 and 37 it is included to give the complete phrase: or  – *wḫd dmt.f* . An alternative manner of referring to the bite victim in this Papyrus is found in Paragraphs 31 and 33: *ḫr(j) dmt.f* (literally, 'the one that has his bite wound').

[63] Photograph of lotus stems by Wendy Golding, at Helderberg Nature Reserve in Cape Town (2010).

5.2.12.3 Note 3

Both Erman & Grapow (vol. 5, 1931:323) and Hannig (2006:1009) list a word *ṯs* with a possible meaning of *zermalen* (to crush), which is not the same word that we have in this paragraph, for which there seems to be no meaning in the dictionaries. The word *ṯs* that we have here clearly describes a symptom of some sort related to the patient's physical reaction to the snakebite.

In this Paragraph this word  (*ṯs*) describes a symptom that affects the patient from head to toe, while in Paragraph 36 a similar word  (*ṯs*) describes a condition related to the bite wound (see 5.2.23.5, note 5).

Sauneron (1989:175), too, struggled with a suitable meaning for this word  , which he has translated as *tétanisé* (paralysed). In his note he says that the word might refer to tetanus-like muscular spasms, which might indeed be disabling and prevent movement, so that although 'paralysed' is not necessarily the correct meaning, the reasoning behind this choice is clear and acceptable. The sign  used as a second determinative, which relates to actions requiring force or effort, would support this, while the sign as a determinative for conditions of the body frequently has a negative connotation of something unhealthy.

The word *bꜣgj* has already been used in the previous line of this paragraph to refer to weakness or paralysis (depending which meaning of the word one prefers). There is no reason for it to be repeated using a different verb. Therefore, *ṯs* is likely to have a completely different meaning. Whatever the meaning of this verb, it affects the whole body *m tp.f r tbwtj.f* (from his head to the soles of his feet).

Sauneron (1989:175) points out that there is a verb *ṯs* in demotic which is equivalent to the Coptic word τω2c, and the German word *salben* (to anoint). This word is *verser* in French – meaning 'to pour, to shed (tears, blood, etc) or 'to lapse into' (Merriam-Webster 2005:359). Sauneron (1989:175) feels that this may imply *ruisseler de sueur* (to run with sweat). However, in Paragraph 20 the word *fdt* is used to describe a patient's face that sweats. Unfortunately, one cannot ascribe a meaning to a new or unusual word based on two examples alone. One would need to look at more examples of this word and the context in which they are presented in order to offer a suitable suggestion for a meaning.

5.2.12.4 Note 4

For an explanation of the phrase '*ḥr n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

5.2.12.5 Note 5

The crucial role played by the sun in sustaining life on earth was realised by the ancient Egyptians, and so it was deified and named 'Ra', literally 'sun'. Accordingly, Ra, although not the oldest god, certainly became the most important god.

As a solar deity, Ra was linked to time. It was believed, and rightly so, by the ancient Egyptians that the sun controlled the three seasons which are part of the cycle of nature: the inundation of the Nile, the growth of crops, and the subsequent harvest time (Wilkinson 2003:206). Not only were the seasons controlled by Ra, but also the 24-hour cycle of day and night. Depending on the time of day, Ra had different names and representations. As the rising sun he was Khepri, represented by a scarab beetle. At dawn he was Harakhty or Ra-Harakhty (Horus of the Horizon), and at the time of the setting sun he was Atum, or Ra-Atum (Allen 2005a:144–145). However, as the sun he was usually represented by a hawk or falcon with a solar disc on his head, and this disc was enveloped by a cobra goddess who represented the power of the deity, says Hart (2005:133) to deliver 'instant death'.

In his important role as a creator god, Ra as Atum-Ra (Shaw & Nicholson 2002:231) was believed to emerge at the very beginning of time, rising up out of the watery matrix on a mound (Wilkinson 2002:207). Alternatively, he rises as a child on the first lotus bloom (Hart 2005:134). Once Ra had come into being, says Wilkinson (2002:207), he created all living things and humankind.

One of Ra's most important roles was as protector of the king. It was believed that Ra was the very first king and, therefore, also the one who established kingship (Wilkinson (2003:207). When Ra was too old and tired to be king he ruled from the sky, according to Wilkinson (2003:207). In one myth Nun commission the goddess Nut to turn into a cow and lift the aged Ra onto her back above the earth. Here she turned into the sky, resulting in Ra becoming King of the Heavens (sky) (Wilkinson 2003:208). In another myth the elderly Ra passes on his power to Horus, alternatively the king (Müller 2003:327).

Ra's cult was first attested, according to Wilkinson (2003:209), in the Second Dynasty in the name of the king Raneb. The cult of Ra gained popularity from the Fourth Dynasty when the kings began to name themselves *Sa Ra* (Sons of Ra), a tradition introduced by the king Djedefra (2566–2558 BCE) (Shaw & Nicholson 1995:239), and which continued right up to the Roman Period (Pinch 2002:183). Although he was worshipped all over Egypt, Ra's main cult centre was at Heliopolis (Hart 2005:133). It is believed that there must have been an open-air solar temple here on which Fifth Dynasty solar temples to Ra elsewhere were modelled (Shaw & Nicholson 2002:239), i.e. constructed with an open court in which an obelisk was placed, reaching for the sky, with an offering altar before it (Müller 2003:325). Ra was often represented as a sun disc encircled by a cobra, or as a man with a ram, falcon or scarab head (Wilkinson 2003:208). However, there were no sanctuaries containing cult statues to Ra (Müller 2003:325). It seems this was not necessary as the sun itself was the god, and each morning he rose above the obelisk in the open-air temples.

Ra's nocturnal journey through the Duat, which is described in the *Litany of Ra* on the walls of New Kingdom tombs in the Valley of the Kings (Shaw & Nicholson 2002:239), shows how, in the Fifth Hour of the night, he dies and becomes one with Osiris. In the Twelfth Hour of the night Ra is reborn as Khepri (Müller 2003:327), heralding the birth of a new day. This nocturnal journey is fraught with perils and dangerous creatures (such as the monstrous serpent Apep) that have to be overcome so that order may triumph over disorder and the sun could be born again.

Perhaps the most striking worship of the sun god emerged in the Amarna Period, during which time the pharaoh Akhenaten turned the cult of the sun into monotheism, abandoned the traditional Theban capital and established a new capital which he named Akhetaten (Tell el-Amarna) and penned the *Hymn to the Aten* (represented by the sun's disc) in which the sun was glorified.

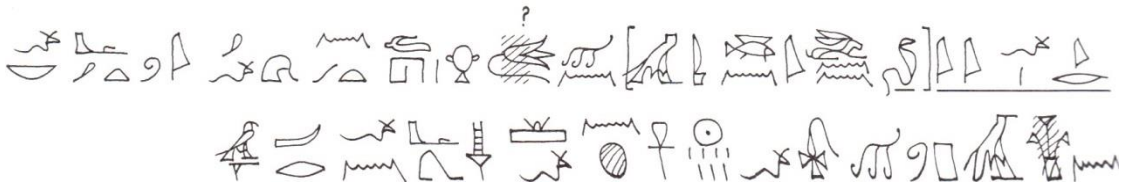
In mythology Ra has two links to snakes. The first link is found in the myth in which Isis desires to learn Ra's secret name. He refuses to give it to her and so she creates a snake from Ra's spit and she leaves it on a path on which he travels every day. This deadly snake bites Ra and, as he is dying, he eventually gives up his secret name to Isis because only she can save him (Pinch 2002:69–71). The second link is in the myth in which Horus is bitten by a

venomous snake and Isis appeals to the deities for help. Ra sends Thoth to the aid of Isis, and so Horus is healed (Pinch 2002:185).

The possible connection between Ra and the neki snake (see 6.4.5 for the possible identity of the neki snake, and 7.2.13 for an emetic treatment for the bite of the neki snake) may be that this snake is described as being like a stem of a lotus. This description brings to mind the young Ra rising from the primordial waters on the first lotus flower. Perhaps this imagery created the link with this snake in the ancient Egyptian mind, but we simply do not know what the exact connection is here.

5.2.13 Paragraph 26 – the Viper

Brooklyn Papyrus, page 2, line 2



jr fy, [*wnn jnm*] *n sšn ḥr dhnt.f. jw ꜥt.f nb nḫɜ pw* (*n*) *jnm/jwn. srf.f hrw 7, ꜥnḫ.f. ꜥḥꜥ.f n ḥwr.*

Regarding the viper [there is the image] of [a lotus flower] upon its forehead[1]. Every limb of the bite victim (lit. his) has a disorder of the skin / skin colour[2]. His fever (will last) for seven days, (but) he will live. It does the bidding of Horus[3, 4].

5.2.13.1 Note 1

Sauneron (1989:22) restores the missing text in the lacuna between  and  with the words *wnn jnm* in accordance with the extant text in Paragraphs 27–28 and 29 of the *Brooklyn Papyrus*. In his notes, Sauneron (1989:22) strangely refers to *jwn* and not *jnm.* These are two completely separate words, spelled differently. The word *jnm* refers, among others, to skin or skin colour (Faulkner 1986:23; Hannig 2006:87), while *jwn* has the meaning of complexion or colour or appearance (Faulkner 1986:13; Hannig 2006:33). Refer to 5.2.5.1, note 1, regarding the use of the words *jnm* and *jwn*.

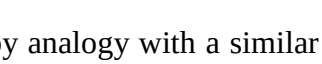
In this particular case, Sauneron (1989:22) correctly translates *jnm* as 'image'. It is clear that upon the snake's head there is a pattern in the skin that reminds one of the image of a lotus flower. Sauneron (1989:23) thinks that perhaps this mark, which could be either a circle or an image that reminds one of a lotus, could be bluish in colour. Sauneron (1989:22) is uncertain of the exact shape of this mark because the sign used by the scribe has been damaged and the remaining traces do not quite resemble the sign  (M9 in Gardiner 1959:480) with which he restored it.

The word *jnm* does not seem to refer to 'colour' here, but rather to a pattern. Therefore, Sauneron's use of the word 'image' is not out of place. It may well be that the author of the Papyrus intended to convey 'colour or pattern in the shape of a lotus'. Many snakes in the viper group have a similar strong pattern on the head. It is not colour that is being referred to, otherwise the text would simply state as much.

5.2.13.2 Note 2

A problem is presented by the word  (*nḥɜp/nḥp*) which describes the condition of every limb of the bite victim (*ꜥt.f nb*). Sauneron (1989:23) finds it difficult to determine the exact meaning and he says that his translation is a conjecture: *tous les membres sont parcourus de spasmes* (every limb is wracked with spasms).

Sauneron (1989:23) investigates the possibility of the word *nḥɜp*, which is first attested here, in the dictionaries and which he thinks might have something to do with hair or body hair because of the determinative. However, Sauneron (1989:23) feels that the word *nḥp*, which he says may indicate a rapid movement of the limbs, offers a better possibility. Despite suggesting *nḥp* Sauneron incorrectly refers the reader to *nhp* ( or) in Von Deines & Westendorf (1961:469) instead, where the meaning is *schnelle bewegung* (rapid movement).

However, a solution to the correct transliteration and translation for is provided by analogy with a similar line in the *Ebers Papyrus* 197:  – *nḥɜ pw pr.k* (it is a disorder of your body (lit. house)). Based on this, one can transliterate the line  which we have here in Paragraph 26 as *jw ꜥt.f nb nḥɜ pw* (*n*)

jwn (each / all of his limbs has a disorder of colour / the skin).

5.2.13.3 Note 3

For an explanation of the phrase '*ʿḥʿ n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

5.2.13.4 Note 4

Horus is one of the oldest and most important of the Egyptian gods; evidence of his existance was attested from at least the start of the Dynastic Period, if not before (Shaw & Nicholson 2002:133), when the falcon form began to appear on monuments and palettes (Hart 2005:70). His presence in ancient Egypt continued right up into Graeco-Roman times (Meltzer 2003:165).

Horus, a falcon-god of the sky, was often depicted as a falcon or a falcon-headed man. There were other falcon and hawk gods but many of them became assimilated into Horus, who was a protector of the pharaoh and the 'embodiment of divine kingship' (Shaw & Nicholson 2002:133), also the first national god and the god of kingship according to Meltzer (2003:165). Accordingly, the Egyptian king became, to quote Hart (2005:71), 'the living Horus on the throne', and the early rulers were known as the 'Followers of Horus' (Shaw & Wilkinson 2002:133; Hart 2005:71). Horus appears in the titles of the kings from the Fifth Dynasty onwards. Each king, says Allen (2005a:64) had five names and the first was the 'Horus name', while the third was the 'Golden falcon name'.

One of the titles of Horus that links him to kingship is 'Horus the Saviour'. According to Hart (2005:72), it refers to the right of Horus to inherit or succeed from his father Osiris. Consequently, the king's son had the right to succeed him and rule Egypt, thus saving Egypt from those who had no right to rule, such as insurgents or rebels. In this way, Horus was a protector of kingship, and in the myth of the *Contendings of Horus and Seth*, Horus was judged by the gods to be the rightful ruler (Shaw & Nicholson 2002:133).

Horus had several iconographical representations, frequently the falcon, but most commonly the human form with a falcon's head. As a child, Horus was often represented as an infant

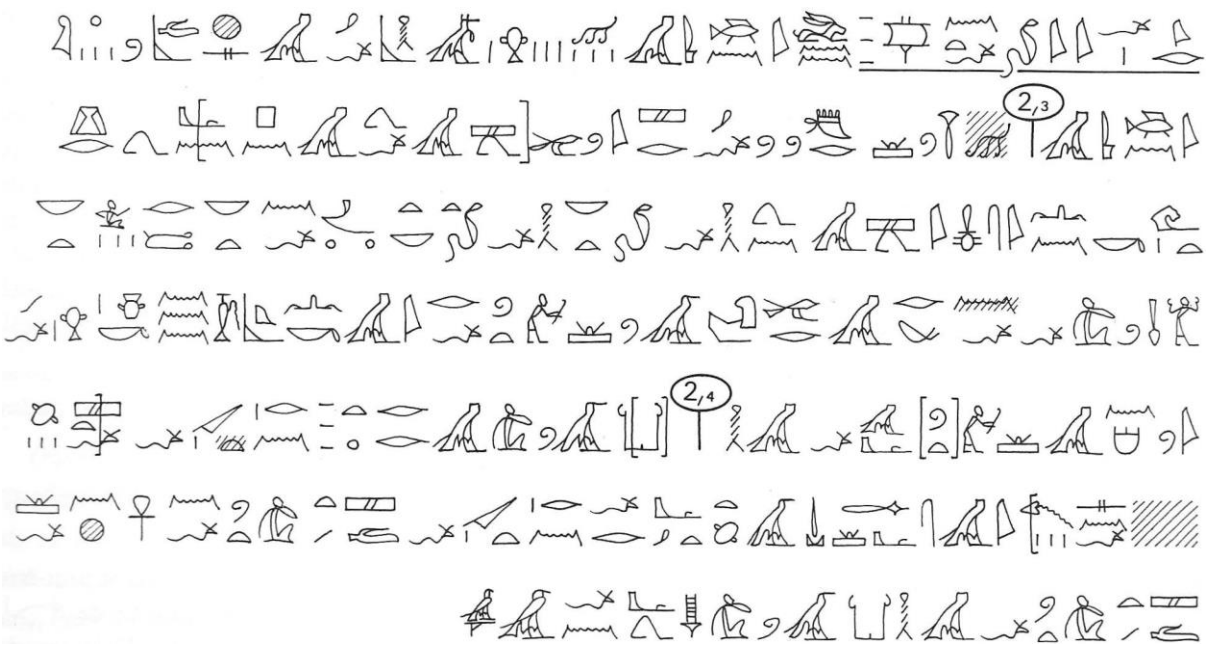
seated on the knee of his mother Isis, and sometimes with his fingers in his mouth (Hart 2005:70). As ‘Horus the child’ he is the son of Isis and Osiris (Hart 2003:71).

Horus appears in numerous myths but perhaps his most relevant role here is that of survivor of a venomous snakebite. When Horus was a child, he was bitten by a venomous snake and his mother, Isis, appealed to the other deities to help heal him (Pinch 2002:81), and he duly survived. ‘Horus the child’ is often depicted on stelae grasping snakes or scorpions in his hands and trampling upon dangerous creatures such as crocodiles. These magical stelae were known as ‘cippi’ and the most well-known of these is the *Metternich Stele* (see 8.4.2.2 and 8.4.3.4). These *cippi of Horus* appeared from the Late Period to the Roman Period, according to Shaw & Nicholson (2002:331), and were amulets to protect one from dangerous creatures, and even to provide healing from a snakebite or scorpion sting.

The bite victim in this paragraph survives the snakebite, just as Horus did when he was a child. Perhaps this is the link between this viper and Horus, namely that he controls a snake whose bite is survivable. See 6.3.7 for the possible identity of this viper.

5.2.14 Paragraph 27 – the Blowing Viper

Brooklyn Papyrus, page 2, lines 2 to 4



jr fy nft, wnn jnmw 3 ḥr nḥb(*t*)*, m ḫsbd mɜᶜ, jnm wɜḏ. ḏrww.f šrjw,* [*šm.f m pn*]ᶜ*n ḫr ḥɜt.k. nj js mj šm n ḥf*(*ɜw*) *nbt ḥf*(*ɜ*)*t nbt. mɜɜ.n.f nbt rmṯ*(*t*) *nbt, kɜ ḫrw.f n.f r sḏm wr.* ᶜ*ḥɜ tw r.f*! *jm.k qb.k ḥr.f*! *jw nḥm* [*tw*] *m-*ᶜ*.f m ḥkɜw rrt. r n dmt.f š*[*ft* (*pr*) *snf*] *jm.s* ᶜɜ*. ḏɜt* ᶜ*t.f r r n dmt.f. šdt tw n.f* ᶜ*nḫ.f, šdt tw fy m ḥkɜw.* ᶜ*ḥ*ᶜ*.f n ḥr.*

Regarding the blowing viper, there are three (spots of) colour upon its neck[1], in (the blue of) true lapis-lazuli, and the colour green. Its sides appear small, when [it moves][2] in front of you, twisting repeatedly. The movement is unlike that of any male snake or female snake[3]. If it catches sight of anything or any people it makes (such) a loud sound against it so as to be heard distinctly. Be on your guard against it (lit. do not relax[4] near it)! [One] can surely save (him) from it with magic spells and a remedy[5]. The opening of the bite wound is [swollen (and) blood flows][6] from it copiously. His limb is affected[7] up to the opening of his bite wound. One can perform an exorcism for him (the patient) and he lives, (for) one can exorcise (this) viper with magic spells. It does the bidding[8] of Horus[9].

5.2.14.1 Note 1

The word *jnm* in this line should be read as 'colour' or 'markings'. Sauneron (1989:23) has translated this as 'there are three spots of colour on the nape of its neck' and then refers to the snake in the preceding paragraph by saying that, in his opinion, this type of marking and also the species of snake is the same. Yet, it may well be that these snakes are not the same. (See 6.3.8 for the possible identifications of this snake and the reasons for these identifications). In the first place the area of marking differs. The marking discussed in Paragraph 26 of the *Brooklyn Papyrus* occurs on the snake's head (*ḥr dhnt.f*) and not on its neck (*ḥr nḥb*(*t*)*.f*) as it does here. This snake may well have a similar marking on its head (a number of the vipers seem to have a similar marking) but in this case the colour is significant enough to be noted by the author of the Papyrus.

5.2.14.2 Note 2

Sauneron (1989:24) has suggested the restoration [*šm.f m pn*]ᶜ*n* which he translates as *lorsquelle rampe* (when it creeps). The word *pn*ᶜ*n* must be a word that describes the manner in which this snake moves. The line following it reiterates that its method of movement is unusual. Sauneron's restoration is quite convincing, especially if one is referring to a snake such as the puff adder (*Bitis arietans*) (see 6.3.8), which this may well be, or one of the other

puff adder types. However, in his translation *lorsq'elle rampe* (when it creeps), Sauneron (1986:23) does not give the word *pnʿnʿ* its full significance with a suitable meaning. Hannig (2006:294) gives this exact word *pnʿnʿ* with the meaning of *mehrmals drehen*, which seems to be exactly right here, i.e. 'twisting repeatedly'. The manner of movement of this snake is different to that of other snakes, and this is an important characteristic for identification purposes.

5.2.14.3 Note 3

In Paragraphs 39, 42a, 42b, 43b and 44a of the *Brooklyn Papyrus*, this same phrase 'every male snake and every female snake' also appears. Here, in Paragraph 27, the hieroglyphic spelling is as follows:  . In Paragraph 45c the hieroglyphic spelling for 'every female snake' is as follows:  .

The first word *ḫf*(*ꜣw*) is masculine, followed by the adjective *nbt*, apparently grammatically in the feminine gender. The following word, *ḫf*(*ꜣt*), is feminine in gender, and is correctly qualified by *nbt* as one would expect.

If one takes into consideration that this copy was done by a scribe during the Late Period, he is likely to have used grammatical conventions that he was familiar with. Indeed, this must the case with the word *nbt*. Černý *et al* (1993:81) has the following comment regarding the use of *nb* / *nbt* during the Late Period: 'the two forms,  , (masc.), and , (fem.) are used indiscriminately'. So, it was not uncommon for the feminine form of this particular adjective to be used with a masculine noun, and *vice versa*. Of the Late Period use of *nb* / *nbt*, Jasnow (1992:8) writes 'the determiner , 'every', is usually written with the feminine *.t* (), as often in the Late Period, '.

Wherever a male snake is mentioned on its own, the form of the adjective is also *nbt*, which is probably best translated as 'every snake' or 'every kind of snake'. This use of *nbt* is consistent throughout the *Brooklyn Papyrus*.

It is interesting that the manner in which the second *nbt* is written with graphic transposition in the hieroglyphs here, creates a visual balance: . This visual balance is

more obvious in Paragraphs 39, 42a, 42b, 43b and 44a with the of the feminine noun omitted:  .

5.2.14.4 Note 4

The current translation of this line differs from that of Sauneron (1989:24). His translation reads: *n'aie aucune confiance en elle* (do not have any trust in it). The word *qbb* refers to something that is cool, calm or quiet, and Faulkner (1986:277) neatly interprests it as being 'to take one's ease', i.e. 'to relax', a particularly apt meaning here; cf. Hannig (2006:922): *ruhig* (quiet, still, calm); *gelassen* (calm, composed); *behaglich* (comfortable, cosy). The author of the Papyrus is, therefore, advocating that one should be watchful and alert around this snake.

5.2.14.5 Note 5

Refer to 5.2.1.6, note 6 for Paragraph 14 regarding the alternative spelling of the word *ph̲rt* as *rrt*.

5.2.14.6 Note 6

The remaining traces at the beginning and end of this lacuna suggested to Sauneron (1989:24) the restoration of the words *šft* and s*nf*. His translation reads *il en coule* [*du sang*] (it flows with blood), but one does not really know what is missing between *šft* 'swells' and *snf* 'blood'. There are no traces of the missing verb with *snf*, but on the basis of 2^{7} (Paragraph 31) and 2^{13} (Paragraph 36) where the phrase is *jr snf*, Sauneron (1989:24) tentatively suggests *pr snf* (blood flows).

It is not clear if the word *ꜥ* comes at the end of the line, thus reading: *r n dmt.f š*[*fwt pr snf*] *jm.s ꜥ*, or if it is the start of the next sentence, reading: *ꜥ ḏ̲t ꜥt.f*, but since the former construction seems to fit the context better in this way, the current translation includes it in the line: *r n dmt.f š*[*fwt pr snf*] *jm.s ꜥ*, as does Sauneron (1989:24) in his note 7.

5.2.14.7 Note 7

The meaning of the word *ḏ̲t* is unclear and the dictionaries are not much help here. Whatever its meaning may be, it clearly refers to a condition that affects the entire limb of the patient. A meaning of 'distended' may be applicable here because the limb is likely to be very swollen

after a viper bite. Sauneron's (1989:25) translation reads: *grande est l'altération de son membre* (great is the distortion of his limb). It has been suggested by Dévaud that *ḏ3jw* is the forebear of the Coptic word χO (κυρτός) which means 'crooked' or 'hump-backed' (Sauneron 1989:25), and so one can agree with Sauneron's reasoning and hence his use of the word 'distortion'. Sauneron (1989:25) also mentions the comment of Breasted who says that *ḏʿw* is a general word for 'ailing' or 'affected', and that the feminine word *ḏ3t*, meaning 'sickness' or 'wretchedness', is very common. Therefore there seem to be several possible meanings, depending on the context but generally indicating discomfort or perhaps even pain connected to some medical condition. The word 'affliction' seems to cover it well in this case. Lack of clarity on the meaning of *ḏ3t* in this specific context prompts this current translation to use the word 'affected' as it seems to have the most general meaning.

5.2.14.8 Note 8

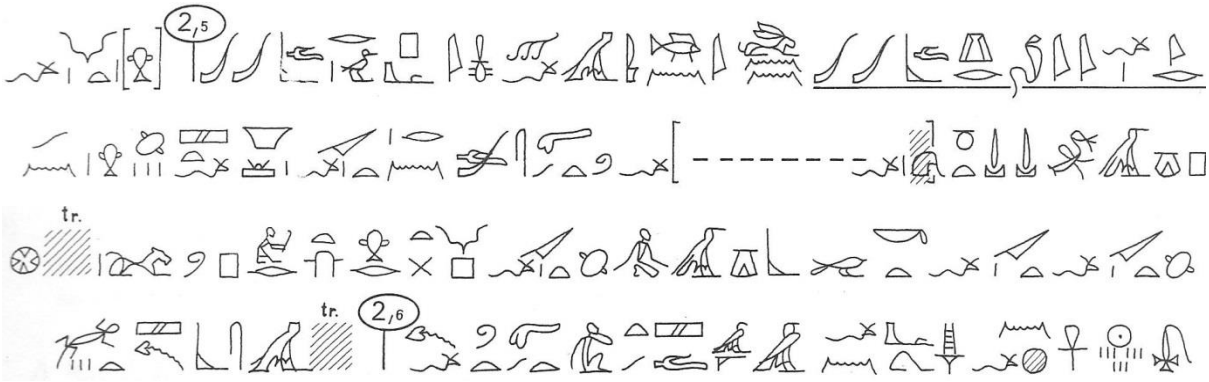
For an explanation of the phrase '*ḥ̣ʿ n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

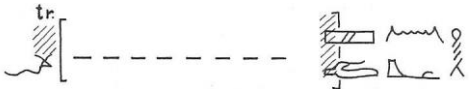
5.2.14.9 Note 9

Refer to 5.2.13.4, note 4 of Paragraph 26 regarding the link between Horus and snakes. The blowing viper of this paragraph is a very dangerous snake but its bite can be survived, just as Horus as a child survived the snakebite in the myth in which Ra sends Thoth to heal him (see Pinch 2002:185). As with the viper in Paragraph 26, perhaps this is the link between Horus and this snake.

5.2.15 Paragraph 28 – the Horned Viper

Brooklyn Papyrus, page 2, lines 4 to 6





jr fy ḫr dbwj, wnn jnm.f mj pˁr. dbwj [*ḥr*] *wpt.f. pgȝ ḏȝḏȝ*ˁ*t*ˀ[*.f... hˁt nḥbt*].*f. wmt sd. r n dmt.f wsḫ, šft ḥr n wḫd dmt.f, dmt.f kt bȝg wḫd dmt.f. wpt ḥryt rpw rjt dmj. srf hrw 9,* ˁ*nḫ.f.* ˁ*ḥ*ˁ*.f n ḥr. šdt mtwt.f* [*r bnrw*] *m sbšj* ˁ*šȝt, ḥnȝ šdt* […].*f.*

Regarding the viper which has horns, its skin is the colour (lit. its skin colour) of a quail. There are two horns [on] its brow, (and) [its] head[1] widens out (from the snout)[2], (and) its [neck is narrow][3]. Its tail is thick. (If) the opening of his bite wound is wide, the face of the one suffering its bite is swollen, (and if) his bite wound is small, the one suffering the bite is weak. There will, however, start (lit. open) a concern of necrosis (lit. decay) of the surrounding tissue[4]. (After) a fever of nine days, he will live. This snake (lit. it) does the bidding of Horus. Its venom is taken out of the body [lit. outside] by inducing copious vomiting, and performing an exorcism […].

5.2.15.1 Note 1

The spelling of the word *ḏȝḏȝ* (head) is problematic in this text. In this paragraph it has a spelling of *ḏȝḏȝt,* a completely different word with the possible meaning ‘lyre’ or ‘magistrate’, which does not fit in this context.

5.2.15.2 Note 2

The word *pgȝ* has several possible meanings such as ‘open’, ‘reveal’, ‘entrance of a building’, ‘the mouth of a valley’ (Faulkner 1986:96), which do not really fit the context here, but Hannig (2006:316) offers further possible meanings of the word *pgȝ,* such as *ausbreiten* (to spread out) and *ausrollen* (to open out), which offer a more apt description. The broad, flat, triangular head of a viper ‘opens up’, as it were, towards the back – like the mouth of a valley opens up towards the vista which follows. In other words, the head widens out from the snout towards the back of the head of this viper. See 6.3.9 for the possible identity of this viper.

5.2.15.3 Note 3

Sauneron’s proposed restoration here that the missing text should refer to the neck is highly likely to be correct if this paragraph follows the same sequence as Paragraphs 18 and 20 of

the *Brooklyn Papyrus*. In these paragraphs the description of the snake's body tends to follow a logical progression of head, neck, body and then tail. If it is the neck that is being described after the head, then there is a strong likelihood that the adjective describing it is *ḥwꜥt* (short), as it is in Paragraphs 18, 20 and 24. Sauneron has a tendency to translate *ḥ*(*w*)ꜥ as *étroit* (narrow), rather than 'short'. Faulkner (1986:166) and Hannig (2006:553) both give the meaning of *hw*ꜥ as 'short' and not 'narrow'. However, Sauneron (1989:142) justifies his translation of 'narrow' rather than 'short' (see 5.2.5.2, note 2 concerning the use of the word in Paragraph 18). A broad triangular-shaped head followed by a narrow neck is a characteristic of many members of the viper group.

5.2.15.4 Note 4

 – *wpt ḥryt rpw rjt dmj* is a rather difficult line, mainly because of the lacuna and it is unfortunately further complicated by Sauneron's problem with it. Sauneron (1989:26), in his own admission, strangely fails to translate it, and he leaves the translation as 'but […]'. The main problem seems to be twofold. Firstly, Sauneron appears to want this to be a marked adversative adverbial clause in which *wpt* is read as a misspelling of *wpw*. Secondly, he does not seem to recognise the word which follows, which is *ḥryt* and not *ḥr*/*ḥrt*.

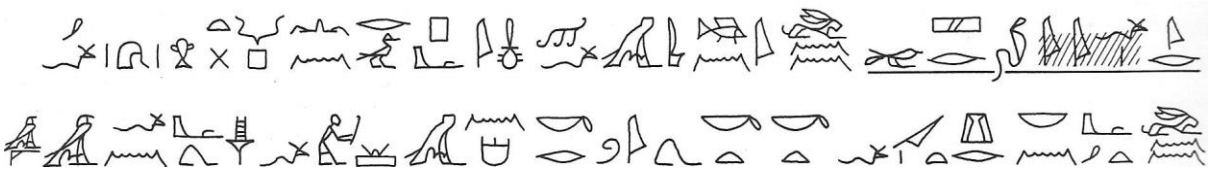
Sauneron (1989:25) may be correct in saying that *wpt* is a strange spelling of *wpw*. This is not so much the problem as the fact that he seems to want to read *wpt ḥryt* as *wpw-ḥr*. Sauneron (1989:25) refers the reader to his note 8 (Sauneron 1989:33) for Paragraph 36 where the same words appear and which he has again transliterated as *wpw-ḥr*. The words *wpw-ḥr* have a meaning of 'except, but' according to Faulkner (1986:59). However, the word *wpw* on its own has a legitimate meaning of 'but' and does not need the word *ḥr* in order to achieve this meaning. In any case the word *ḥr* when it is combined with *wpw/wpt* does not have a spelling of  in the dictionaries.

The word  – *ḥryt* must now be considered. In Faulkner (1986:176) we find a possible meaning of the word *ḥr* as 'terror' or 'dread', and also *ḥryt* with possible meanings of 'terror', 'dread' or 'respect'. Hannig (2006:597–598) gives similar possible meanings such as *erschrecken* (to startle, frighten), *ängstigen* (to frighten, worry), *Furcht haben* (to have

fear, be afraid), and *schrecken* (to frighten, scare). Some of these words seem a bit too strong for the context here in this paragraph, but 'worry' seems to be a suitable solution, as does the word 'concern', which has been used in this current translation.

5.2.16 Paragraph 29 – the Little Viper

Brooklyn Papyrus, page 2, line 6



jr [*fy*] *šr, wnn jnm.f mj pˁr, nn wpwt ḥr tp.f. wnn ˁt nb n ḫr*(*j*) *dmt.f ktkt. jw.k r nḥm.f. ˁḥˁ.f n ḥr.*

Regarding the little viper, its skin colour is like (that of) a quail, (and) there are no horns upon its head. Every limb of the one suffering his bite trembles. You can save him. It does the bidding[1] of Horus [2].

5.2.16.1 Note 1

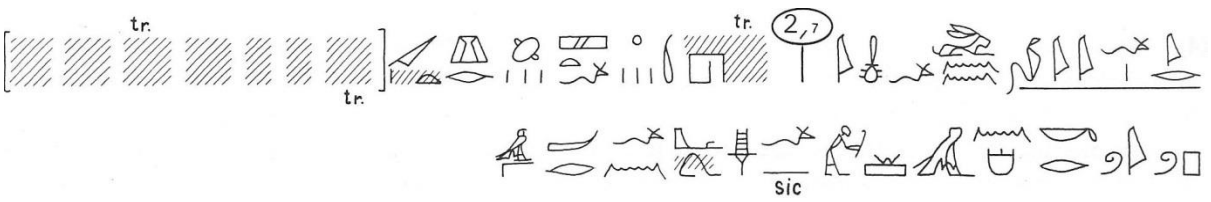
For an explanation of the phrase '*ˁḥˁ n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

5.2.16.2 Note 2

Refer to 5.2.13.4 for Paragraph 26 regarding Horus as well as his mythological link to snakes. The exact link between the little viper (see 6.3.10 for its possible identity) and Horus (see 5.2.13.4) in the ancient Egyptian mind is not apparent in this paragraph.

5.2.17 Paragraph 30 – the Viper

Page 2, lines 6 to 7



jr fy, wnn.f mj [...]*htj. šft wḫd ḫr(j) dmt.* [... ...] *pw. jw.k r nḥm.f. ꜥḥꜥ.f n ḥwr.*

Regarding the viper, it is like […][1] The one suffering the bite wound becomes swollen. It is [… …]. You can save him. It does the bidding[2] of Horus'[3, 4].

5.2.17 Note 1

Damage to the Papyrus means that only a partial word and some vague traces describing the snake remain. The determinative suggests that it is most likely a mineral of sorts, probably used as a comparison for the colour of the snake, says Sauneron (1989:27). He suggests that the trace before the sign 𓆙 was likely to be the sign 𓊹, and he feels that *ḫsbḏ* (lapis lazuli), *stj* (ochre) or *šꜥy* (sand) could not be suitable restorations as they do not fit the remaining traces (Sauneron 1989:27).

Sauneron (1989:27) offers a word *jbhtj* which does seem to fit all the criteria, but he could find no information as to what colour the stone was. On the one hand, according to Brix (2010:499), *jbhtj* may be green porphyry – a mottled green stone, which is a type of igneous rock, with bands of colour in various hues of green, and in her translation of *jbhtj* as 'green porphyry' she refers to Sydney Aufrère (*L'univers minéral dans la pensée égyptienne*, 1991:784) who suggests that *jbhtj* is green porphyry, a stone used, among others, to make amulets in the form of snakes responsible for the protection of gods and humans. In a text from Edfu, Aufrère (1991:784) translates *ꜥꜣt nt bht* as *porphyre vert* (green porphyry). This phrase *ꜥꜣt nt bht* means 'a type of mineral / stone from the Land of *Bht*', and Erman & Grapouw (vol. 1, 1926:64) describe *jbhtj* as *art stein aus Nubien [ab aus dem Lande jbht*] (a type of stone from Nubia [from the Land of *jbht*]).

Harris (1961:97), on the other hand, finds it unlikely that *jbhtj* is green porphyry. Hannig (2006:41) offers a meaning for the word *jbhtj* of anorthosite (a type of gneiss), and it is also described as *Chephrendiorit* (Chephren diorite) from the Land of Ibhat. Both anorthosite and diorite can have a banded appearance, and anorthosite gneiss has a translucent quality and a composition of 'a light grey plagioclase and a greenish black hornblend', say Nicholson & Shaw (2009:32), while dark gneiss is typically banded (Nicholson & Shaw 2009:33).

Whatever the correct word is in the lacuna, and whatever its correct identification, it is seems

certain that this damaged word is a stone or mineral describing the colour or skin patterning of the snake in this paragraph. See 6.3.11 for the possible identification of this snake.

5.2.17.2 Note 2

For an explanation of the phrase '*ḥ n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

5.2.17.3 Note 3

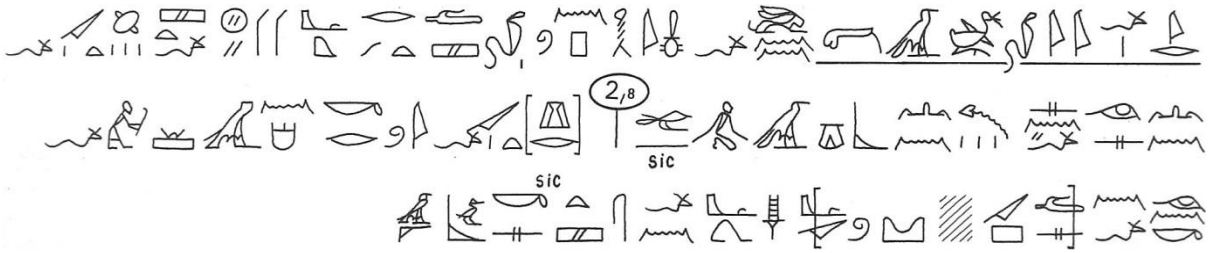
Refer to 5.2.13.4, for Paragraph 26 regarding the link between Horus and snakes. Once again, the exact link in the ancient Egyptian mind between Horus and the viper in this paragraph is not clear.

5.2.17.4 Note 4

Refer to 5.2.8.8, note 8 regarding the spelling of 'Horus' as *ḥwr*.

5.2.18 Paragraph 31 – the Male Viper

Brooklyn Papyrus, page 2, lines 7 to 8



jr fy ṯ(y), wnn.f mj ḥnp dšrt q(). šft wbnw dmt.f, nn jr.s snf. nn bg [ḫrj] dmt.f. jw.k r nḥm.f jr.n.k n.f [ds (m) ḏw]. ḥ.f n stš k.s gb.

Regarding the male viper, it is precisely like the red henep snake. The wound[1] of its bite is swollen, but it does not bleed (lit. produce blood). The one who has the bite wound (the bite victim) is not weak. You can save him after you have applied [the knife] to him [(with) the cutting treatment][2]. This snake (lit. it) does the bidding[3] of Seth[4], alternatively of Geb[5].

5.2.18.1 Note 1

The sign  appears to have been used here as an abbreviation for the word *wbnw* for which it usually serves as a determinative. Elsewhere is this chapter, for example in Paragraphs 25, 30, 32 and 33, the sign  or  serves as an abbreviation for the word *wḫd*: the 'sufferer' (of the bite wound).

5.2.18.2 Note 2

According to Sauneron (1989:28), traces remaining in this lacuna in the hieratic text suggest that the missing words could be *ds* (*m*) *ḏwꜥ*, and he restores the text accordingly by comparing the traces to known words in the Papyrus. His translation (1989:27) reads: *applique-lui le cou*[*teau pour débri*]*der* (apply the knife on him for debridement). Sauneron restored the missing text by comparing the traces to the following paragraphs in the *Brooklyn Papyrus*: in Paragraph 32 (2^{9}) is  – *ḥnꜥ ḏwꜥ* (with a knife); in Paragraph 81 one finds  – *tštš dmt.f m ḏwꜥ ꜥšɜt* (slice his bite wound with a knife many times). The word *tšts* means 'to crush' (Faulkner 1986:301). Perhaps in this context it means lots of little cuts. One could, therefore, translate this as 'make little cuts on his bite wound many times'. Sauneron (1986:110) translates this as 'cut his wounds with multiple incisions'. In Paragraph 72a (4^{20}) is *tštš dmt.f m ds ꜥšɜt.* It is almost identical to the line in Paragraph 81 (5^{13}) except that the word *ds* is used instead of *ḏwꜥ*. This suggests that *ḏwꜥ*, while not necessarily synonymous with *ds*, can be an instrument of cutting rather than a method of treatment or a manner of cutting such as debridement. This also appears to be the interpretation of Lalanne & Métra (2017:215) in *Ebers* 860.

The word *ḏwꜥ* is mentioned in the *Ebers Papyrus*, treatment 860 (page 105, line 4): *mr jry.j m ḏwꜥ – un mal je pourrai agir au moyen un couteau djouâ* (a sickness which I will be able to treat by means of a *djouâ* knife) (Lalanne & Métra 2017:215). In their footnote, Lalanne & Métra (2017:215) give the meaning of *ḏwꜥ* as a *bistouri-coutère* (a lancet). A good meaning supplied by Erman & Grapouw (vol. 5, 1931:522) is *Messer des Artzes* (a doctor's cutting implement or knife).

However, the German translation in Von Deines & Westendorf (1961:1000) presents as a 'knife treatment': *eine Krankheit, die ich durch eine Messerbehandlung* (a sickness which I

treat with a knife treatment). Similarly, Erman & Grapow (vol. 5, 1931:522) quote *eine Krankheit die ich mit dem Messer behandeln will*, and Hannig (2006:1075): *eine Krankheit, die ich durch eine Operation behandele* (a sickness which I will treat with an operation).

One can see from this that the one Egyptian word *ḏwꜥ* has two slightly differing meanings: firstly, referring to the procedure itself and secondly, as the instrument for performing the surgical procedure.

5.2.18.3 Note 3

For an explanation of the phrase '*ḥꜥ n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

5.2.18.4 Note 4

Various early artefacts attest that Seth is connected from very early times (Wilkinson 2003:197) with a cult at Naqada in the Predynastic era (Shaw & Nicholson 2002:264). He was an important deity in the Old Kingdom and was frequently mentioned in the *Pyramid Texts* (Wilkinson 2003:197). During the Middle Kingdom Period, Seth had become assimilated into solar theology and he took his place on the barque of Ra to protect the sun god on his nightly journey through the Duat from the monstrous serpent Apep, enemy of the sun (Wilkinson 2003:197). As the son of the sky goddess Nut, and sibling of Osiris, Isi and Nephthys, Seth was incorporated into the Heliopolitan Ennead (Wilkinson 2003:1997).

At times Seth was seen as a force to be avoided, yet at other times he was a force to be invoked (Shaw & Nicholson 2002:265). Hence his importance to the Ramesside kings – a number of New Kingdom pharaohs of the 19th and 20th Dynasties took Seth's name, for example, Seti (man of Seth), and Sethnakht (Seth is mighty) (Wilkinson 2003:197; Shaw & Nicholson 2002:265).

Seth probably originated as a desert deity and he represented the forces of violence, confusion and chaos, according to Wilkinson (2003:197). These forces were necessary as opposition to *maat* which represented order, and together they created a universal balance (Shaw & Nicholson 2002:264). Seth, as the personification of anger, rage and violence, was the patron deity of the desert and foreign lands (Shaw & Nicholson 2002:264).

This link with danger and hostility and the association with foreign enemies such as the Assyrians, caused Seth to be regarded from the late Third Intermediate Period onwards as more an evil and undesirable deity than an ambivalent one (Shaw & Nicholson 2002:265; Wilkinson 2003:197). Yet, according to Pinch (2002:192), Seth was the patron deity of the eastern desert and its gold mines, as well as being 'Lord of the Oases' and their vineyards.

Seth was associated with the desert, or 'red land' (*dšrt*) and the colour red (*dšr*) (Robins 2003:59), and was known as 'The Red One' (Wilkinson 2003:197). The male viper in this paragraph is described as being like the red henep snake. It is likely, therefore, that the possible link in the ancient Egyptian mind between this snake and Seth might have been the colour red.

5.2.18.5 Note 5

Geb was the 'controller of earth snakes' (Pinch 2002:81). The exact connection between this male viper and Geb is not entirely clear, but it may well be that it was believed that Geb controlled this snake to the extent that its bite caused the wound to swell but not bleed, and that the bite did not cause weakness or death in the victim. See 5.2.9.4 for the link between Geb and snakes

There is no clue in the text as to why this particular viper does the bidding of two different deities. See 6.3.11 for the possible identity of this particular viper.

5.2.19 Paragraph 32 – the *Ar-ar* snake

Brooklyn Papyrus, page 2, lines 8 to 9

jr ḫf(ɜw) ꜥr-ꜥr, wnn jnm n šꜥy. jr psḥ.f s mn.f m gs pf nn dmt, jm nn mn.f m gs.s ḫr(j) dmt. [*mr*] *ꜥjj.j¹ pw. jr.n.k n.f ḫt nbt* [*m sbšt*] *ꜥsɜt, ḥnꜥ ḏwꜥ ḥr-sɜ qꜥ.f. ꜥḥꜥ.f n stš. nn mt wḫd dmt.f.*

Regarding the ar-ar snake[1], (it) is the colour of sand. If it bites someone he suffers on that side that has no bite wound, (but) he does not suffer on his side which has the bite wound[2]. There is [a pain] which I will treat[3], after you have performed on him all the necessary treatments (lit. everything), [with] many [emetics] (lit. by causing him to vomit abundantly)[4], as well as the knife (treatment) after he vomits. This snake (lit. it) does the bidding[5] of Seth[6]. The one suffering its bite will not die.

5.2.19.1 Note 1

Sauneron (1989:29) confidently identifies the ar-ar snake as a cobra, and, more specifically, as the Egyptian cobra (*Naje haje*) (Sauneron 1989:157). Its descriptive name, 'The one rising up' or 'The one that rises up' is derived from the verb *ꜥr* for which Faulkner (1986:45) gives 'to mount up', 'to ascend', and Hannig (2006:161) *aufsteigen* (to rise or to climb), and he also connects it to the words *jꜥ* (Hannig 2006:28) and *jꜥrt* (Hannig 2006:29). This verb is also related to the words *ꜥrt* (Faulkner 1986:45) and *jꜥrt* (Faulkner 1989:11) meaning 'uraeus'. The word *ꜥrꜥrt* (uraeus), in Hannig (2006:162), leaves little doubt as to the identity of the Ar-ar snake as one which rises up – a cobra. See 6.4.6 for the possible identity of this particular cobra.

5.2.19.2 Note 2

It is interesting to note that the pain experienced by the bite victim is not in the side of the body that has the bite wound, but in the opposite side. Sauneron (1989:29) says that he did not find any mention of such a phenomenon in any of the medical texts that he consulted.

5.2.19.3 Note 3

The typical line which usually precedes the necessary treatments in the first part of the manuscript, namely *jw.k n.f nḥm* (you can / will save him), is strangely missing here.

There are two problems in the line: [*mr*] *jj.j pw*. Firstly, there is the problem of the missing text in the lacuna. Sauneron (1989:29) restores this missing text in the line with three signs: *mr* () meaning 'malady' or 'pain' and two phonetic compliments, being  and  . The

line then reads: *mr jj.j pw – c'est* [*un mal*] *que je traiterai* (there is a [pain / ache] which I will treat). Initially it is difficult to see how Sauneron arrives at this restoration and translation from what appears to be [*mr*]*y pw*. Presumably he bases the restoration on traces left of the damaged word and on the analogy of a similar line in another papyrus of the Brooklyn Museum collection, the *Brooklyn Papyrus* 47.218.2 (6^2), which reads *mr jry.j pw* (there is a pain / illness which I will treat) (Sauneron 1989:27). The formula *mr jry.j* is a known formula, with numerous examples of its appearance in medical texts given by Von Deines & Westendorf (1961:380). The restoration of the missing text in the lacuna with the word *mr*, therefore, appears to be highly likely.

The second problem is that the verb *jj.j* is incorrect. This is clear from examples in the *Ebers Papyrus* (treatment numbers 200, 617, 857, 858 etc.)[64]. As an example, in the *Ebers Papyrus*, treatment 857 (page 104, line 3) in Lalanne & Métra (2017:213) reads: *mr jry.j – un mal je pourrai agir* (a pain which I will treat). Strangely, however, Sauneron does not comment on the incorrect verb *jj.j* given here, which is not even spelled with a known variant spelling of *jj* (to come, return), which uses  , and the word does not resemble the verb which this phrase requires, namely *jrj* (to do, make), and which usually uses the biliteral sign  (*jr*) and which would at least require the sign here.

It is interesting to note the unusual use of the first person singular pronoun here as it is not a characteristic of the *Brooklyn Papyrus* in either the first or second part of the manuscript. It is rather awkward here because the subject of the verb in the description of the necessary treatment is the usual second person singular. This verb *jr.n.k* introduces a subordinate clause, namely 'after you have applied…', which usually gives the reason for the more regular main clause 'you can / will save him'.

5.2.19.4 Note 4

Sauneron says (1989:29) the missing text here can be restored according to Paragraph 28 of the *Brooklyn Papyrus*, page 2, line 6.

[64] See Von Deines & Westendorf (1961:380) for a full list of examples in the ancient Egyptian medical texts for the formula *mr jry.j*.

5.2.19.5 Note 5

For an explanation of the phrase '*ḥ*ˁ *n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

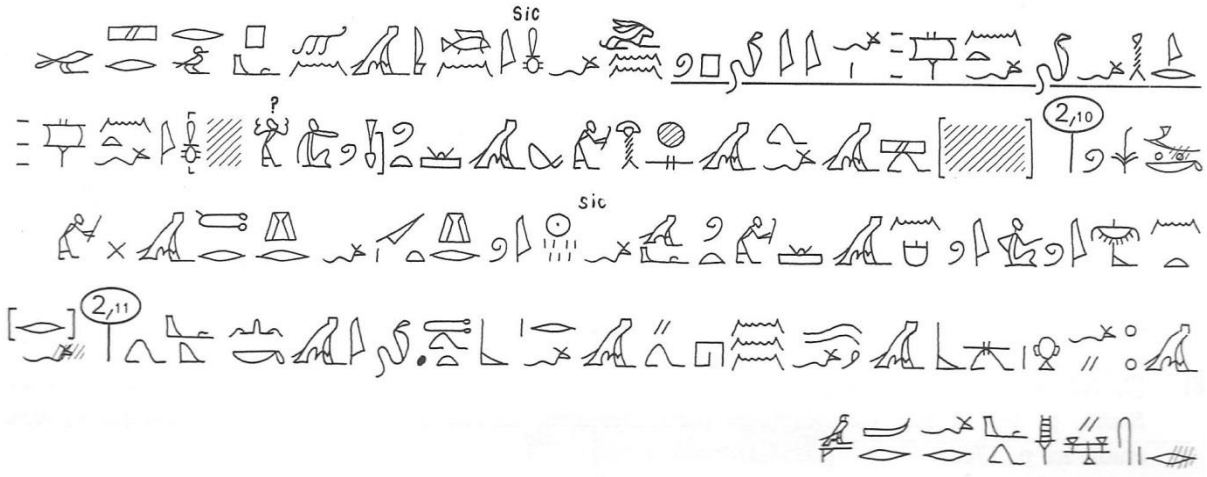
5.2.19.6 Note 6

Refer to 5.2.18.4 for the note on Seth.

The link between the ar-ar snake and Seth may well be that the cobra, in the form of the uraeus, was a protector of the king. Similarly, Seth accompanied Ra on his nightly journeys through the Duat, where his dangerous nature was put to use protecting the sun god against the perils of the underworld, especially against the coils of Apep (Shaw & Nicholson 2002:264).

5.2.20 Paragraph 33 – the Blowing snake

Brooklyn Papyrus, page 2, lines 9 to 11



jr ḫf(*ɜw*) *nft, fy pw. wnn.f mj jnm n pˁr šr. mɜɜ.k sw* [(*ḫr ḥɜt.k*)], *šm.f m ḫsr, sḏm tw* [*ḫrw kɜ mj*] *nft nt nby. jw nḥm tw m-ˁ.f hrw 7. jw ḫr*(*j*) *dmt.f ḫr*(*j*) *ṯrm ḏɜ m jrtjwj.f,*
ḥr sbt m jnḥ.f, mw hɜ m r.f. bṯ ḫfɜw! jm.k ˁq [*r*].*f rssy.* ˁ*ḥ*ˁ*.f r ḥwr.*

Regarding the Blowing snake, it is a viper. It is like the colour of a small quail. (If) you catch sight of it [(in front of you)][1] it moves itself sideways, and one hears[2] [a loud noise like][3] the blowing of a goldsmith[4]. One can save him from it for seven days. The bite victim suffers

from a blinking and drooping (lit. placing over (the eyelids))[5] of both of his eyes, reaching right up to his eyebrows, (and) saliva runs down from his mouth[6]. Leave (this) snake![7] Do not confront[8] it at all. It does the bidding[9] of Horus[10].

5.2.20.1 Note 1

Sauneron (1989:30) proposes restoring the text in the lacuna between *sw* and *šm.f* with *ḥr wꜣt* (on the path / way), or with *ḫr ḥꜣt.k* (in front of you), as in Paragraph 27.

5.2.20.2 Note 2

The word *ḫsr* is difficult to translate in this context. In Faulkner (1986:198) one finds as possible meanings for *ḫsr*: 'dispel', 'drive away (darkness, evil etc)', and Hannig (2006:670) gives the same: *vertreiben* (to drive away, expel). Sauneron (1989:30) plausibly feels that the expression *m ḫsr*, which is first attested here, refers to the lateral sideways movement of a viper. Because it is difficult to get such a meaning out of this verb, he convincingly concludes that, in effect, the word *ḫsr* basically means *écater* (to open), and *metre de côté* (to set aside). No doubt influenced by the French *s'écater* (to turn aside, to swerve), he then translates the phrase *m ḫsr* reflexively: *il se déplace latéralement* (it moves itself sideways), by way of: *en (se) mettant sur le côté, latéralement* (putting oneself on the side, laterally). This describes one of the typical lateral forward methods of movement of a viper.

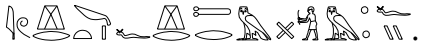
5.2.20.3 Note 3

The phrase *ḫrw kꜣ* is given as a possible restoration by Sauneron (1989:30) based on the analogy with the example in Paragraph 27.

5.2.20.4 Note 4

Metal was melted in crucibles placed above a charcoal hearth and metalworkers used blow pipes to fan the flames to maintain the desired heat in order to melt the metal (Sheel 1989:22–23). It is probably this sound created by the use of the blow pipes by the metalworkers to which the sound of this snake is being compared. It must be noted that Sauneron (1989:30) translates the word *nby* as *ouvrier souffleur* (glass blower), without reference to a goldsmith, but it may be that he has the worker who does the blowing with the blowpipes in mind.

5.2.20.5 Note 5

There are two problems with the line  . Firstly, there is the problem of the best translation for the word *ṯrm*. Winking is a voluntary action and is, therefore, not the best meaning for the word *ṯrm* in this context where the victim is suffering from ptosis. Ptosis can refer to an involuntary drooping or closing of the upper eyelid due to paralysis[65], which is caused by neurotoxin in the venom (Sithole 2013:161). A better word for *ṯrm* would be blinking which is involuntary.

The second problem is that of the two signs  which follow after the word *ṯrm*. There is an abbreviated word here that is represented by a double determinative, and Sauneron (1989:30) does not comment on it. This word  is an additional word describing the condition of the eyes. The determinative  was often replaced by  from the Middle Kingdom Period (Gardiner 1957:455).

A word needs to be found for  that provides both a suitable meaning and that has two determinatives that may be used together. There is one verb *ḏȝj* that can use both determinatives at the same time and which is found in Hannig (2006:1066) with possible meanings of *übersetzen* (to put/place across), *überfahren* (to cross (over)), and *kreuzen* (to intersect, to cross (one's arms)). Perhaps the verb *ḏȝj* refers to a placing of the eyelids over the eyes in the context of this paragraph, in other words: a closing or drooping of the eyelids.

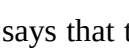
5.2.20.5 Note 6

The resistance of the victim's upper eyelids to remaining wide open (ptosis) and the inability to control saliva running from his / her mouth are suggestive of the descending paralysis that results from neurotoxin in the snake's venom. An increased production of saliva can be a symptom of a neurotoxic snakebite.[66]

5.2.20.7 Note 7

Sauneron (1989:30) translates this line as: *Abandonne! Ne t'en prends pas [à] lui!* (Abandon! Do not take him on, ever!) But it is not immediately clear if this is referring to the snake or to

[65] www.online-medical-dictionary.org; www.merriam-webster.com/dictionary/ptosis (accessed 16th February 2019).
[66] https://my.clevelandclinic.org/health/diseases/15647-snake-bites (accessed 16th February 2019).

the bite victim as a patient. Sauneron (1989:31) recognises *bṯ* as an imperative and correctly says that this is not the same as  in Paragraphs 79b and 80b, where the same group of signs refers to the snake betjet (see 9.2.1.2) and for which  is used as a determinative. However, Sauneron (1989:31) unfortunately fails to recognise that is used here in this paragraph as an ideogram for *ḥfꜣw*, a word that must be accounted for and should be included in the translation because it makes it clear that it is the snake and not the unfortunate victim which must be abandoned! This current interpretation reads: 'Leave this snake! Do not confront it at all'. It seems that this is quite clearly the message. For the possible identity of this snake see 6.3.13.

5.2.20.8 Note 8

The word *ʿq* needed a little consideration in this context. The word  in combination with means 'coming into' (Faulkner 1986:49).  means to 'enter face to face' (Faulkner 1986:50). One could, therefore, consider that a translation of 'confront' would be a good meaning for *ʿq* here.

5.2.20.9 Note 9

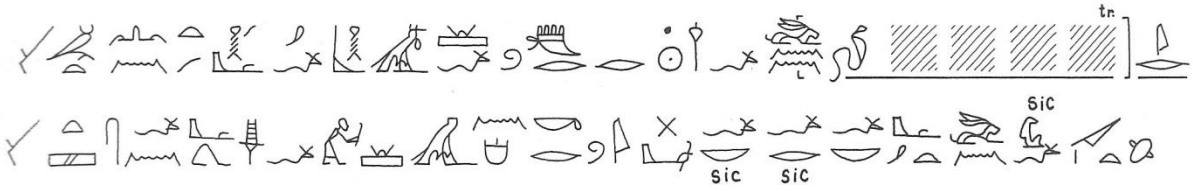
For an explanation of the phrase '*ḥʿ n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16

5.2.20.10 Note 10

Refer to 5.2.13.4, note 4 regarding the link between Horus and snakes.

5.2.21 Paragraph 34 – the … snake (name illegible)

Brooklyn Papyrus, page 2, line 11



jr [*… … … …*]*, wnn.f ḥḏ r ḏr.f. nḥb*(*t*)*.f ḥ*(*w*)*ʿt. nn m*(*w*)*t wḫḏ dmt.f. wn ʿt.f nb fꞱrꞱfꞱnbꞱ. jw.k r nḥm.f. ʿḥʿ.f n stš.*

Regarding the [… … … … (snake)][1], it is completely pale. Its neck is narrow[2]. The one suffering its bite wound does not die. His every limb twitches (lit. jumps)[3]. You can save him. This snake (lit. it) does the bidding[4] of Seth[5].

5.2.21.1 Note 1

Sauneron (1989:31) notes that the manuscript is so badly damaged here that the name of this snake cannot be read. See 6.7.1 for the possible identification of this snake.

5.2.21.2 Note 2

Refer to 5.2.5.2, note 2 regarding the translation of the word *ḥ(w)ꜥt* as 'narrow' rather than 'short'.

5.2.21.3 Note 3

Sauneron (1989:31) points out that there appears to be a spelling error of the verb in this line, for no verb in this form exists. He convincingly suggests that  should read  – *ftft* with a meaning of *sauter* (to jump), or to leap, or *tressauter* (to start, or to jump). In trying to interpret the meaning of this word in the context one should imagine the jerking of limbs from a spasm of sorts, or a noticeable shaking or twitching.

5.2.21.4 Note 4

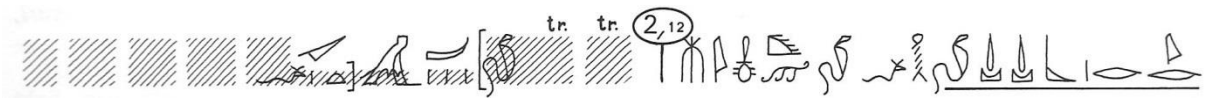
For an explanation of the phrase '*ꜥḥꜥ n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

5.2.21.5 Note 5

The exact relationship between this unknown snake and Seth is not known. Refer to 5.2.18.3, note 3 and 5.2.19.6, note 6 regarding the relationship between Seth and other snakes in this manuscript.

5.2.22 Paragraph 35 – the *Ro-Bedjadja* snake

Brooklyn Papyrus, page 2, lines 11 to 12



jr r-bḏꜣḏꜣ ḥf(*ꜣw*)*, km mj ms*[… …]. *ṯst* 3 *m d*[*mt.f*] … … … … … … … [*ʿḥʿ.f n* …]*s*.

Regarding the ro-bedjadja[1] snake, it is black like the *mes*[.. …][2] There are three tooth (marks) in its [bite][3]… … … … … … …[It does the bidding of[4]…]s [5].

5.2.22.1 Note 1

It is interesting to note that Sauneron (1989:32) gives a transliteration of *ro* rather than *re* or even *ra* for the sign 𓊖. Although we do not know exactly what the correct vowel should be, Egyptologists tend to use 'e'. Nunn (2002:141) uses the word *ro* for the smallest volume measure, which is approximately 14 mℓ – a mouthful. It may well be that the vowel 'o' is used by Sauneron and Nunn because the Coptic word for 'mouth' is *rŏ* (Gardiner 1957:452) and this may be an indicator of what the original vowel sound was in the ancient Egyptian language. For a possible identity of the ro-bedjaja snake, see 6.3.14.

5.2.22.2 Note 2

The last sign before the lacuna, says Sauneron (1989:32) is unclear, but it seems to have the same form as 𓋴 found in Paragraph 48a (3^{20}) and Paragraph 80b (5^{11}) where it is the first sign in the name of a snake called *msw bdš* (mesou-bedech) (see 9.2.1.2). It may also be the first sign of the word *ms* as in *ms n ḥnp* (a small or young henep), found in Paragraph 22 (1^{23}).

However, the snake in Paragraph 22 is pale in colour and this would rule out these words in the lacuna here in Paragraph 35 because this snake is black. Unfortunately, we do not know what the colour of the mesou-bedech is, but 𓋴𓈖𓏏𓊃𓏏𓆑 (*msw bdš*) is a possibility for the lacuna if the unclear sign is indeed 𓋴, and this is the name that Sauneron prefers.

5.2.22.3 Note 3

Although the sign 𓏛 is usually the determinative of plurality, here it indicates the number of teeth that left the puncture marks on the victim, in this case three.

5.2.22.4 Note 4

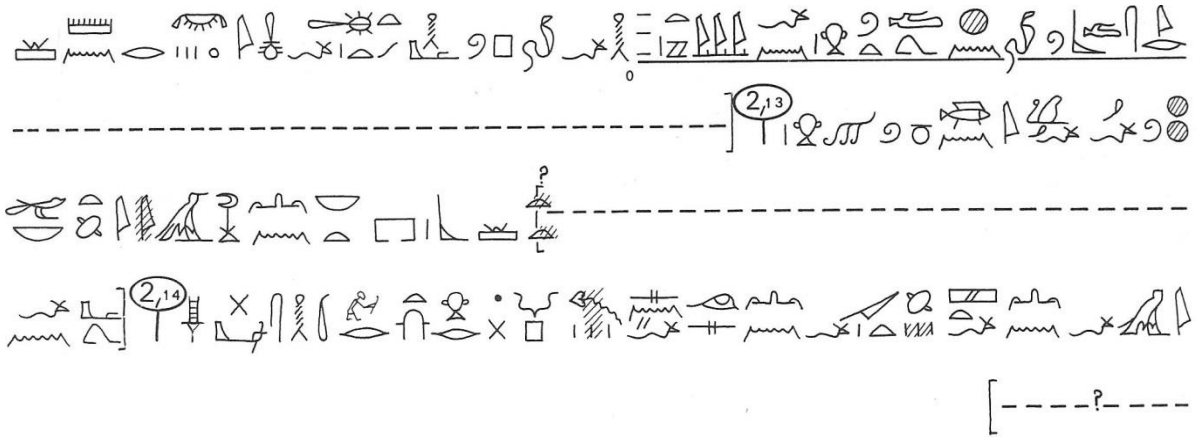
It is not unreasonable to suspect that the last part of this paragraph tells us which deity the snake does the bidding of, as this formula appears at the end of many of the paragraphs. Sauneron (1986:32) suggests that the deity is Khonsu. However, according to the dictionaries, Khonsu is spelled  , i.e. with the signs M23 and G43, and not with  (S29). No variant ending in appears in Erman & Grapow (vol. 3, 1929:299–300), Hannig (2006:652), or Faulkner (196:193).

5.2.22.5 Note 5

For an explanation of the phrase '*ḥ*ˁ *n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

5.2.23 Paragraph 36 – the *Sedeb* upon which one treads in the fields

Brooklyn Papyrus, page 2, lines 12 to 14



jr sdbw ḫnd tw ḥr.f n sḫwt, ḥf(ɜw) *pw ḥ*(*w*)ˁ*t. ḫt.f mj nbw, r-mn ḫḫw.f pḥwj.f. jnw ḥr* [*... ... ...*]*tt b*(*w*) *nb. nn ḫɜyt nb jm.f, nn šft dmt.f, nn jr.s snf, wpt ḥryt r tḥs.* ˁ[*ḥ*ˁ*.f n ... ...*]

Regarding the sedeb upon which one treads in the fields[1], it is a short / slender snake[2]. Its belly is like gold, as well as its throat and its rear end. There are coloured markings upon [… … … … … … … … … …]?[3] everywhere. There is not any suffering from it[4], (for) its bite wound does not swell, nor does it bleed, (but) there is a concern for …[5]. It [does the bidding of… …][6].

5.2.23.1 Note 1

The determinative  that accompanies *sḫtw* refers to land, especially irrigated land (Allen 2005a:436) or even marshlands (Faulkner 1986:239). This information may be relevant when attempting to identify the species of snake in the following chapter. It is important to note that this snake is specifically 'the sedeb upon which one treads in the fields' (see 6.5.1). This differentiates it from the snake in Paragraph 20 of the *Brooklyn Papyrus* which is a 'sedeb, red like the sekhtef of Seth'. These are two completely different snakes.

5.2.23.2 Note 2

As Sauneron (1989:32) says this is the only time in the manuscript where this adjective is used to describe anything other than the neck of the snake. Sauneron (1989:32) translates *ḫf*(*ɜw*) *pw ḥ*(*w*)*ʿt* as 'this is a slender snake'. Sauneron has a preference for translating the word *ḥ*(*w*)*ʿt* as *étroit* (narrow), or *mince* (thin, slim or slender) (refer to 5.2.5.2, note 2 and 5.2.13.3, note 3), although the dictionaries give a possible meaning of 'short' for *ḥwʿ*.

Sauneron's translation of the word in the context here is entirely possible. This snake may be either short in length or slim in body width.

5.2.23.3 Note 3

A little confusion is created by Sauneron (1989:33) transliterating  (*jnw*) as *jwn* which is spelled  . However, one finds in Erman & Grapow (vol. 1, 1926:52) as a variant spelling of *jwn* which was used during the 19th and 20th Dynasties. Possible meanings of *jwn* given by Erman & Grapow (vol. 1, 1926:52) are *farbe* (colour), in the sense of *farbe der Blumen* (colour of flowers), or *der Haut* (of skin). The word *jnw* in Faulkner (1986:23) has a possible meaning of 'pattern'. Perhaps the meaning intended by the scribe, and what Sauneron (1989:33) favours in his note 6, is coloured markings of some sort. Unfortunately, damaged text prevents us from knowing what the pattern is.

5.2.23.4 Note 4

The current translation here differs slightly from that of Sauneron (1986:32). He interprets the line as: *aucun mal ne vient de lui* (nothing bad comes from it), whereas the current translation interprets this as there being no disease, illness or suffering arising from the snake's bite. The writer is possibly referring to the fact that no adverse effects like swellings or infections arise

from the bite, as the following portion of text mentions that there is no swelling or bleeding resulting from the bite wound.

5.2.23.5 Note 5

Once again we find the words *wp*(*w*) *ḥryt* that presented a problem in Paragraph 28. Refer to 5.2.15.4. In this previous instance, where we find *wpt ḥryt rpw,* one was being cautioned against necrosis setting in. Here, in this paragraph, one can believe another caution is being given: *wpt ḥryt r tḥs*. The word *tḥs* is also used in Paragraph 25 of the *Brooklyn Papyrus* and has been discussed in 5.2.12.3, note 3. Unfortunately, as there is no word *tḥs* in the dictionaries and the meaning is, therefore, unknown. One does not know what the caution is about in this paragraph.

5.2.23.6 Note 6

For an explanation of the phrase '*ḥ*ʿ *n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

5.2.24 Paragraph 37 – The … snake (name illegible)

Brooklyn Papyrus, page 2, lines 14 to 15

[*jr … ḥf*(*ɜw*)**]** *km ḫt.f ḥḏ. jnw dɜ* **[***m***]** *ɜt.f r-mn-m sd.f, mj db. nn m*(*w*)*t wḫd dmt.f, wp*(*w*) *mn* ʿ*t.f nb. jw.k r nḥm.f.* ʿ*ḥ*ʿ*.f n ḥt ḥr. nn ḫɜyt mr jm.f.*

[Regarding the … snake] (it is) black. (but) its belly is pale. Coloured markings extend along its back as far as its tail, like the deb (snake)[1]. The one suffering its bite does not die, but suffers in each of his limbs. You can save him. It does the bidding[2] of Hathor [3]. No severe illness comes from it.

5.2.24.1 Note 1

Sauneron (1989:34) points out that no deb snake is found anywhere in the extant part of the manuscript. He (Sauneron 1989:34) suspects that the comparison is to the sedeb of Paragraph 36, but there and elsewhere in the manuscript the name sedeb is always spelled with a 'w' at the end of the word. If 'deb' is not a spelling error then it may be one of the snakes in the lost first part of the Papyrus (see 9.2.1.2).

5.2.24.2 Note 2

For an explanation of the phrase '*ʿḥʿ n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

5.2.24.3 Note 3

The link between this particular snake (see 6.5.2) and Hathor is not clear. See 5.2.8.5, note 5 on Hathor.

5.2.25 Paragraph 38 – the *Kar* (chameleon)

Brooklyn Papyrus, page 2, lines 15 to 16

jr kɜr, wɜḏ pw r ḏr.f, ḫt.f ḥḏ. rdwj ⸢t⸣ ḫr.f. jw pḥɜ 3 ḥr ɜt.f, 2 r ḥɜt.f, kt r pḥwj.f. jr ḫtm.f ḥr ḫt jw.f jr.f jnmw sn. jw nḥm tw m-ʿ.f r ḫrw 7. ʿḥʿ.⸢t⸣ ⸢m⸣ jnpw. šd tw n s ⸢m⸣ sḥtp.f. dmḏt ḫf(ɜw)(w) *m wpt dmt*(w) *– šfdw 38.*

Regarding the Kar (chameleon)[1], it is completely green, (but) its belly is pale. It has two feet under it[2]. It has three raised marks (lit. divisions)[3] upon the back of its head[4], two (face)

towards its front, the other (faces) towards the back (lit. its rear). If it is on something (lit. blends with, mingles)[5] then it assumes its (lit. their) colours. One can save him from it up to the seventh day[6]. The chameleon (lit. it) does the bidding of Anubis[7, 8, 9]. One performs an exorcism in order to calm the patient (lit. him)[10].

In total: 38 chapters[11] of snakes and description of the bites.

5.2.25.1 Note 1

The word *kɜr* does not appear in Hannig (2006), Faulkner (1986) or Erman & Grapow (vol. 5, 1931). By the description of the Kar which follows in the text above, it becomes clear that this is a chameleon. Despite the abundance of the chameleon in modern-day Egypt (Sauneron 1972:160), there is very little mention or representation of this little reptile from ancient Egypt. At the time of writing his article, *Une description Égyptienne du chameleon* (1972), Sauneron notes that L. Keimer (1936) had found only three examples, namely: an Old Kingdom Period bas-relief, a representation on a New Kingdom ostracon, and a small sculpture from the Late Period (Sauneron 1972:161). When Sauneron read the *Brooklyn Papyrus* in 1966 at the Brooklyn Museum, he apparently found the first attested mention of the word *kɜr* –chameleon, in an ancient Egyptian text. Hence his comment on Paragraph 37: *l'autre élément d'intérêt de ce petit texte reside dans le nom égyptien qui est donné au chameleon, et qui est nouveau dans nos dictionnaires* – the other element of interest from this small text lies in the Egyptian name which is given to the chameleon, and which is new in our dictionaries.

5.2.25.2 Note 2

A chameleon has four legs. Perhaps this is an error on the part of the scribe while making the copy or it is the perception that a chameleon has two legs – when viewed from the side.

5.2.25.3 Note 3

The signs  are difficult to find a suitable meaning for at first and they must represent an abbreviated form of a word. The sign  is a determinative in the word *pḫɜ* (to split) (Faulkner 1959:523). The word  (*pḫɜ*) has both and as determinatives, and to which Erman & Grapow (vol.1, 1926:542) give possible meanings of *spalten* (to split), and *durchschlagen* (to split (in two)). Hannig (2006:308) gives as an abbreviated spelling for

 and gives possible meanings of *spalten* (to split), and *öffnen* (to open). To 'split' something can be considered as dividing something, so the word *pḫꜣ,* in the context of describing the chameleon, can refer to the three divisions of some sort on its head, and this is how Sauneron (1989:35) interprets it. He describes the divisions as raised marks which form the 'helmet' or occipital flaps of the chameleon.

Two species of chameleon are found in Egypt: the African chameleon (*Chamaeleo Africanus*) and the common chameleon (*Chamaeleo chameleon*) (see 6.8.1). The African chameleon has a shape (occipital flap) at the rear of its head which faces backwards, and a ridge above each eye orbit which may be the two shapes facing forwards (see drawing in El Din 2006:139). It may even refer to the eyes themselves when rotated forwards. The common chameleon has an even more pronounced occipital flap.

5.2.25.4 Note 4

As Sauneron (1989:35) convincingly points out, the word *ꜣt* probably refers to the back of the head in this instance, rather than the back of the animal as it would normally do in this manuscript.

5.2.25.5 Note 5

The word *ḫtm* can also have the meaning of 'to mix (ingredients)' (Faulkner 1986:199). The text in this paragraph suggests that, to the ancient Egyptian mind, the chameleon actually 'mixes' with its surroundings by apparently taking on its colour.

5.2.25.6 Note 6

As the chameleon is actually harmless the comment about being able to save the patient within a specified number of days does not seem to make much sense, but it was clearly believed to be harmful in some way by the ancient Egyptians and this may have produced psychosomatic symptoms. Sauneron says (1972:162) that the chameleon has a reputation as a bearer of misfortune in Africa.

5.2.25.7 Note 7

The line should read: *ʿḥʿ.f n jnpw.* The use of *.t* and *m* must be an error by the scribe.

5.2.25.8 Note 8

For an explanation of the phrase '*ḥꜥ n X* (name of deity)', refer to 5.2.3.4, note 4 for Paragraph 16.

5.2.25.9 Note 9

Anubis was a god of the dead who was linked to the embalming process and mummification (Shaw & Nicholson 2002:34), and he was represented in canine form as a black jackal (Pinch 2002:104) or with a man's body and a canine head (Shaw & Nicholson 2002:34).

Anubis was also a 'guardian of the necropolis', intended to ward off jackals and wild dogs who came to dig up the dead (Shaw & Nicholson 2002:34–34; Pinch 2002:104) and his image could be depicted at tomb entrances as a warning to grave robbers (Pinch 2002:104), which would hopefully deter them.

Anubis was eventually incorporated into the Osiris myth as the god who wrapped the dead body of Osiris to preserve him (Pinch 2002:104). It was believed, by the first millennium BCE, that Anubis enforced curses and controlled messengers who brought suffering and even death (Pinch 2002:105)

The exact link between the chameleon and Anubis here is not known. Unfortunately, there is no information on the chameleon in ancient Egyptian mythology, so it would be difficult even to speculate about the association between the two in the ancient Egyptian mind.

5.2.25.10 Note 10

In effect, this treatment is designed to calm the mind of the patient and provide reassurance more than anything else, as the chameleon is not dangerous.

5.2.25.11 Note 11

The word *šfdw* refers to a papyrus or register but here one is dealing with a number of paragraphs or chapters.

CHAPTER SIX

IDENTITIES OF THE *BROOKLYN PAPYRUS* SNAKES

6.1 INTRODUCTION

This chapter investigates the possibility of being able to identify the snakes in the first part of the Brooklyn Papyrus based on the descriptions of the snakes and results of their bites as observed and described by the ancient Egyptians.

As noted in Chapter Four, the relevance of identifying a snake is understandably important, as the type of treatment given will vary according to the type of venom received. In later chapters the methods and treatments practised by the Priests of Serqet will be examined, but firstly it is necessary to find out what types of snakes the priests were dealing with. Therefore, in Chapter Six, I will examine the descriptions of the snakes and any mentions of the effects of bites on the victims as detailed in Paragraphs 14–38 of the *Brooklyn Papyrus* and from those attempt to determine which snake species might have been encountered and where.

In order to attempt this identification, it is necessary to compare textual material with what is known today about a particular species of snake and the effects of its venom. One must also check the distribution and likelihood of finding that species in the area of ancient Egypt.

Present-day distribution maps of snakes included in this chapter are my own drawings, based on information and maps provided in Shupe (2013).

6.1.1 Earlier opinions on the identities of the *Brooklyn Papyrus* snakes

Sauneron gave probable and possible identifications of the snakes included in the *Brooklyn Papyrus*. These were done based on the descriptions given in the first part of the Papyrus. Nunn (2002), has considered these probable and possible identifications of the snakes made by Sauneron, and consulted on this issue with Professor David Warrell, Professor of Tropical Medicine and Infectious Diseases at Oxford University (Nunn 2002:185). In her book *Étude*

de la faune ophidienne de l'Égypte ancienne (2010), Nicole Brix considers Sauneron's work while attempting to identify snake species in ancient Egyptian art, iconography and texts.

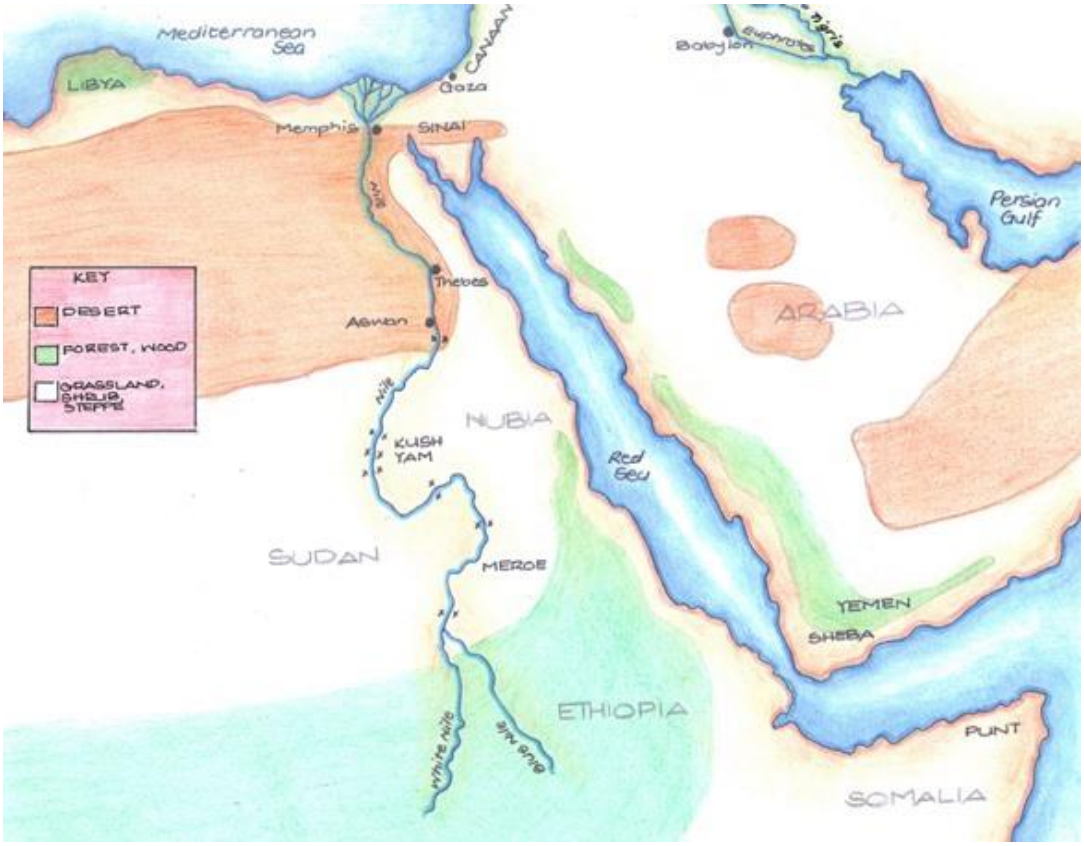
The opinions of Sauneron, Nunn and Brix will be considered in order to see whether any different interpretations are possible. The classification of some of the snakes has changed since Sauneron first attempted to identify them. One such example is the *Echis carinatus* which is now classified as *Echis pyramidum* in Egypt and East Africa. It is likely, therefore, that original identifications will change. I shall attempt to corroborate identities or, where my own opinion differs, justify the change.

6.1.2 Ancient ophidiofauna and climate change

We do not know for certain what the ancient patterns of faunal distribution were. Neither do we know if a particular species that occurs in a specific area today occurred in that same area in ancient times. In order to reconstruct ancient faunal distribution one must rely on bioarchaeology (Gilbert 2006:153) and archaeozoology (Gilbert 2006:163). Distribution of a species is affected by climate change and land use by the human species (Gilbert 2006:153), and this use of land would include agriculture and urbanisation. It is not within the scope of this study to delve into bioarchaeology but it must be considered while discussing the possible identity of snake species found in the *Brooklyn Papyrus*, that distribution patterns of the various snake species may be slightly different in modern times. One can expect that the patterns may be fairly similar, but we cannot take this for granted. It is a fact that wildlife numbers decline as their natural habitats are destroyed (Gilbert 2006:163), and local extinctions (but not species) have probably occurred because of human encroachment on the environment.

In addition to human impact on the environment, changing climatic conditions have also played a role in changing the distribution patterns of fauna and flora. As climatic conditions change, so the vegetation changes in accordance. A moister climate after 10 000 BCE caused desert areas which had previously been barren to became desert grasslands, according to Butzer (2006:123). Gradually the moister climate began to disappear in waves from around 4000 BCE. This occurred initially in southwestern Arabia and the phenomenon gravitated slowly northwards over time (Butzer 2006:123).

Woodlands and forest occupied a coastal section of Libya, and a belt of woodland and forest ran across the Blue and White Niles towards the Ethiopian coastline. Woodlands also covered the area across the Red Sea opposite Nubia and a section that ran close and parallel to the coastline through Arabia to Sheba and Yemen (see Map 1 below). Grasslands and areas of shrub were abundant in Sudan and parts of Arabia, and desert zones were much reduced from what they had been at the start of 12 500 BCE. Butzer (2006:138) speaks of 'dry shifts' that occurred around 3000, 2200 and 1300 BCE. So it appears that the moist climate was drying out and causing a vegetation change.



Map 1: Vegetation patterns approximately 5000 BCE[67]

Many species of fauna, including ophidiofauna[68] (snakes), inhabit specific environments. For example, the Boomslang[69] (*Dispholidus typus*) favours trees where it can drape itself over

[67] Map created by Wendy Golding (2016), based on maps and information in Redford (in Silverman 1997:49) and Butzer (in Sasson 2006:129)

[68] The word 'ophidiofauna' stems from the Greek *ophis* and the modern Latin *ophidian*, an order of reptiles containing snakes (https://www.merriam-webster.com/dictionary/ophidian. Accessed 20th June2020), and the word 'fauna', meaning the animal life characteristic of a region (https://www.merriam-webster.com/dictionary/fauna. Accessed 20th June 2020). 'Ophidiofauna', therefore, refers to the resident snakes of a region.

[69] The name 'boomslang' means 'tree snake'.

branches and prey upon birds, one of its food sources. The Sahara sand viper (*Cerastes vipera*, see 6.3.10) buries itself in the sand with just its eyes sticking out, and lies in wait for its prey. The African beauty snake (*Psammophis sibilans*, see 6.5.2) prefers habitats near rivers and irrigation canals.

Many Afro-tropical species in Egypt began to migrate southwards approximately 4900 years ago (approximately 2900 BCE) owing to developing arid conditions that persist up until today – see El Din (2006:9). Some of the species found today in the Nile Valley are possibly 'relics' left behind from the time when the region started to become more arid and produce desert on either side of the Nile (El Din 2006:10). So it would seem that some species that may have occurred in Egypt prior to, or around 2900 BCE, will not be found there presently. The reason they are not found there now can be attributed to climatic conditions having changed their environment, but they can be found further south (El Din 2006:10).

6.1.3 Egyptian presence outside of Egypt

It must be appreciated that wildlife has no borders, other than environmental conditions, that may confine them to a certain area. It is possible that some of the snake species encountered by the ancient Egyptians were encountered outside of Egypt (as defined by today's borders). These would be areas that the Egyptians entered for trade, travel or domination and administrative occupation.

6.1.3.1 Egyptians in the Sinai and Canaan

Archaeological evidence shows a strong relationship between Egypt and the Syrio-Palestinian region. In order for the Egyptians to reach the region to the east of their territory they would have moved through the Sinai. Later they also went by sea in boats, but still continued to move along Sinai land routes and maintain a presence there. There they would have encountered ophidiofauna that may not necessarily have been found in Egypt.

In the Early Bronze I Period (approximately 3300–3050 BCE) there was Egyptian presence in southern Canaan and it was accessed through the desert of northern Sinai (Mazar 1992:106). Predynastic and First Dynasty Egyptian pottery was found along this route, indicating that the Egyptians of these periods lived in northern Sinai. Various other pottery finds indicate Egyptian settlements in the northern Negev and the southern coastal plain of Canaan (Mazar 1992:107). During the Early Bronze II Period, (approximately 3050–2700

BCE according to Mazar 1992:108), the Egyptians began to mine turquoise in the Sinai region (Mazar 1992:117) and during the Egyptian Fifth Dynasty Period they conducted military raids on the Canaanites (Mazar 1992:142). In the Second Intermediate Period Egypt was ruled by the Hyksos from the delta region. At the end of the Canaanite Middle Bronze Age (approximately the mid-sixteenth century BCE), the Hyksos were expelled from Egypt into southern Canaan, where they were besieged by the Egyptians. Further conflict caused the destruction and collapse of a number of Canaanite cities (Mazar 1992:226).

During the New Kingdom Period, which coincided with the Late Bronze Age in Canaan (approximately 1550–1200 BCE) (Mazar 1992:233), Egypt dominated the Canaanite region. The famous battles of Megiddo and Kadesh, amongst others, took place in the Syrio-Palestinian region, requiring Egyptian military forces to access the area via the Sinai. Mazar (1992:233) reminds us that Egyptian troops used the Via Maris, a route along the Canaanite coastal plains and northern valleys, which would also have facilitated trade (see Map 2 below in 6.1.3.2).

During the Canaanite Late Bronze Age, the Egyptians maintained administrative centres in Canaan as the Canaanite city-states were Egyptian vassals (Mazar 1992:236). No doubt these centres were established to control their economic interests. We learn from Mazar (1992:236) that produce leaving Canaan for Egypt included wood, copper, oil, wine, wheat and cattle, along with slaves. The Egyptians remained in Canaan into the Iron Age and, according to Mazar (1992:279) constructed forts and residencies. Archaeological evidence, according to Mazar (1992:279–280), reveals that at least 60 stations existed by this time along what is known as the Horus Road[70], that ran from the Nile delta to Gaza, crossing through the northern Sinai. Turquoise mining activities in the southern Sinai continued from the earlier periods and the Egyptians mined copper at Timna (Mazar 1992:285).

It is clear that the Egyptians travelled through the Sinai region from early times and established routes to access Canaan and the Syrio-Palestinian region for commerce, military exploits, mining and the creation of administrative posts. There would, therefore, have been

[70] The southern section of the Via Maris (Way of the Sea) was known as ‘the ways of Horus’ by the Egyptians (Aharoni 1979:47).

plenty of opportunity over hundreds of years for Egyptian traders, soldiers, administrative personal and project workers to encounter the reptiles of the Sinai and beyond.

6.1.3.2 Egyptians in Nubia and Punt

During the Middle Kingdom Period, expeditions were made into Nubia (in modern-day Sudan) to bring back commodities such as gold and other metals, along with stone for construction (Knapp 1988:163). These expeditions were also sometimes of a military nature and Knapp (1988:163) informs us that campaigns were often led to defend the Egyptian borders from the people of the Sudan region. During the New Kingdom Period, building stone, gold and semi-precious stones were brought from Nubia, while luxury goods such as wood, ostrich plumes, animal skins and ivory, perfume and oils were obtained from further south in Sudan and beyond (Knapp 1988:172).

The location of the land of Punt has long been a topic of scholarly debate. Some place it in Arabia, others place it in the general area of Eritrea, Somalia and Ethiopia (the Horn of Africa), and yet others suggest that it may have been located as far south as Madagascar and Mozambique.

It is possible that missions to Punt may have started from the Old Kingdom Period during the Fifth Dynasty (approximately 2475 BCE), according to Potts (2006:1459). The walls of Queen Hatshepsut's temple at Deir el-Bahari illustrate the expedition that she commissioned to the Land of Punt. The expedition was by sailing boats and brought back monkeys, dogs, various woods including incense trees, myrrh, gold and ivory (Knapp 1988:173–174). A number of expeditions were made to Punt by the Egyptians but Hatshepsut's is the best documented. Expeditions to Punt were apparently quite regular. Potts (2006:1459) agrees that from here they obtained their myrrh and frankincense.

Punt probably lay somewhere in the area of modern-day Eritrea / Somalia / Ethiopia. Knapp (1988:174) posits coastal Somalia or Arabia. Aside from the animal species and produce known to have been brought back from Punt, one can consider for the evidence the *Commiphora* and *Boswellia* trees, which produce the aromatic resins of frankincense and myrrh. *Commiphora myrrha* is endemic to Somalia and Yemen, yet Ramesses III is reported to have planted specimens at Thebes and Memphis. Some scholars believe that Egyptian ships would not have been capable of sailing to these areas through the Bab el-Mandab and

the Gulf of Aden (see Map 2 below) prior to the Late Period without a great deal of difficulty, and feel that Punt more likely lay in the Sudan or northeast Ethiopia. However, other scholars believed that Punt incorporated the land on either side of the Bab al-Mandab – in other words, Somalia and Yemen (Potts 2006:1460).

In le Roux (2008:8) we read that Punt may have been located much further south than the Horn of Africa. This is according to Lendering's (2007) opinion that the Egyptians obtained antimony from Punt which cannot be found in the Horn of Africa region, but rather in Mozambique. However, this fact cannot eliminate the Horn of Africa as a possible location of Punt, because if Punt was a trading depot then produce would have been brought there from various other locations, including from Mozambique. The Egyptians did not necessarily have to travel to the actual source of antimony in order to obtain it, in my opinion.

The Phoenicians circumnavigated Africa in approximately 600 BCE (le Roux 2008:9). It is, therefore, possible that they could have traded in southern Africa. The presence of Phoenician and Egyptian artefacts in sub-Saharan Africa such as glass beads and pottery at sites such as Mapungubwe and Great Zimbabwe attests this (le Roux 2008:10). It is mentioned by le Roux (2008:11) that mining and treatment methods used in Zimbabwe were very similar to those used in ancient Egypt during the Ptolemaic Period. Mapungubwe was trading gold with Egypt from around 1200–1300 BCE.[71] The inference here is that the location of Punt was further south than the Horn of Africa. It must be remembered, however, that the Egyptians were sending expeditions to Punt before the Phoenician circumnavigation of Africa – from the time of the Fifth Dynasty, around 2475 BCE, according to Potts (2006:1459).

Weingarten (2010)[72] explains that on the goods-laden ships returning from Punt were baboons. In April 2010 a team from the American Research Centre in Egypt presented their analysis results of the hairs of three mummified baboons found in Egypt. The oxygen isotope values of the hairs of two of the baboons were good matches to hairs of modern-day baboons of Eritrea and Ethiopia. Weingarten (2010) does not consider Somalia, Yemen or Mozambique possibilities for Punt. In fact she believes the location of Punt can be narrowed

[71] http://www.sahistory.org.za/article/mapungubwe (accessed online 7th April 2017).
[72] http://judithweingarten.blogspot.com/2010/04/eti-eritrean-queen-of-punt.html (accessed 28th December 2019).

down to Massawa, a town occupying two linked islands just off the coast of Eritrea which served as a trading depot.

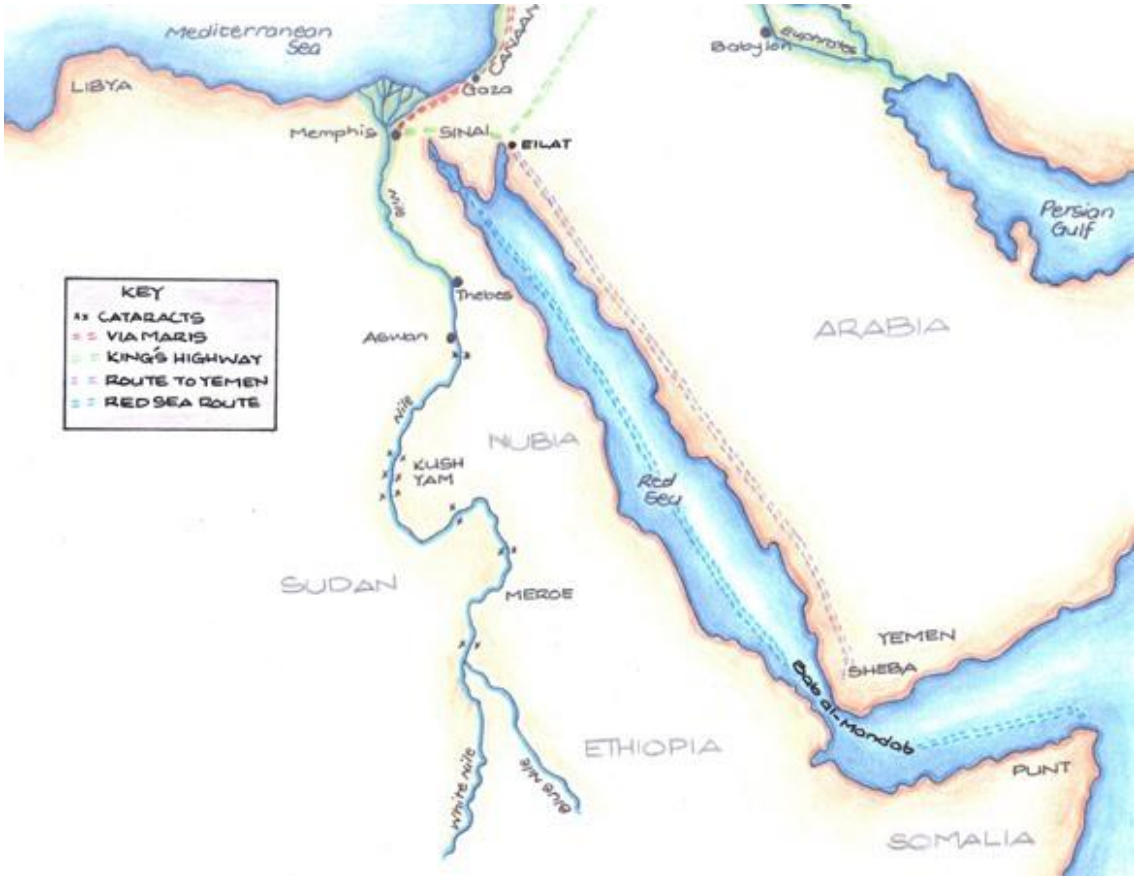
It is suggested by Sleeswijk, based on finds of mummified sacred baboons (*Paio hamadryas hamadryas*) in the tomb of Thumosis III and at Gabanet el-Giboud in the region of Thebes, that Punt could have been the origin for these baboons. If this is the case, then Punt would be located along the coastal regions and inland of Eritrea, including the islands of Dahlak Kebir (Goudsmit & Brandon-Jones 2000:112).

Balanda (2005/2006:42) suggests that not all goods obtained in Punt were necessarily produced in Punt. The Puntites were merchants who bought and sold goods along the Arabian coast from modern-day Yemen to Oman, and along the African coast to Kenya and possibly inland as far as the modern-day Central African Republic. It is further suggested by Balanda (2005/2006:42) that Punt could have been located where modern-day Djibouti is found, sandwiched between Eritrea and Somalia, backed by Ethiopia and directly over the straits of Mandab from Yemen.

It is possible that Punt is a specific town or port, or 'Punt' may refer to an entire region from the coast of Sudan to Madagascar and the coast of Mozambique. Trade was plied up and down this stretch. Perhaps goods were brought from Egypt and Mozambique to a central location in the Punt region, such as Massawa just off the coast of Eritrea, or to Djibouti.

We learn from Redford (1997:49) that caravan routes from Memphis to Nubia would be a seven-month return journey – plenty of time to get acquainted with the snakes along the route (see Map 2 below)!

Various other land routes (see Map 2 below) between Egyptian towns such as Memphis, Thebes and Aswan existed and provided access to the oases along the Nile and outlying areas, as well as other locations in Libya, Kush, Yam and Meroe in Nubia and Sudan. Sea routes lead along the Red Sea to Punt (the Horn of Africa and beyond), and, in addition, a land route also existed from the Sinai to Sheba in Arabia on the opposite shore of the Red Sea from Ethiopia according to the map in Redford (1997:49).



Map 2: routes to Canaan, Yemen and Punt[73]

Traveling to these regions outside of Egypt would have given the ancient Egyptians many opportunities to encounter snakes that they did not find in their homeland. This will become apparent as the possible identities of the snakes described in the *Brooklyn Papyrus* are investigated.

6.2 THE *BROOKLYN PAPYRUS* SNAKES

In what follows, I have placed the snakes described in the *Brooklyn Papyrus* (see Chapter Five) according to my interpretation of their identities into the following groups: viperids, elapids, colubrids and atractaspids, followed by an unidentified snake and the chameleon (which is clearly not a snake). It will be of interest to see what bearing the ancient Egyptian name of the snake may have on its identity, if any. I use the ancient Egyptian name of the snake in each of the headings below, and then I use the transliteration thereafter.

[73] Map created by Wendy Golding, based on the information and map in Redford (1997:49)

6.3 VIPERIDS

Members of the viper group have heads that are triangular shaped and are distinct from the rest of the body, which is usually short and stout (Marais 2014:23; Alexander & Marais 2007:169). Night adders are an exception to the general description. The venom of members of the viper group is predominantly cytotoxic (Alexander & Marias 2007:169), but other venom types may be present.

Many of the vipers make a loud hissing sound for defence. An example is the loud hissing sound made by the puff adder (*Bitis arietans*). However, says O'Shea (2011:19), hissing would cause loss of fluid especially in arid climates. Vipers in these areas, such as the saw-scaled or carpet vipers, tend to have heavily keeled scales which they rub together to produce a loud rasping sound (O'Shea 2011:19).

Various snakes of the viperid group are found in Egypt, and the Sinai, Yemen, Sudan and the Horn of Africa. These include *Vipera, Echis*, *Cerastes, Pseudocerastes* and *Bitis* (Mattison 2007:221). The determinative for the viper  (*fy*) is often, but not always, used in the *Brooklyn Papyrus* for the viperids. Naturally, this has immediately assisted the identification of certain snakes as belonging to the viper group. A paragraph in the *Brooklyn Papyrus* discussing a viper will sometimes begin as follows:  *jr*(*j*) *fy*, 'regarding the viper…'[74]

6.3.1 The Ka-en-am snake (*kꜣ n ʿm*)

In Paragraph 18 of the *Brooklyn Papyrus* is a description of the ka-en-am (*kꜣ n ʿm*) snake (see 5.2.5), which has a big head and a narrow neck, and is the colour of a quail, and it has a tail 'like a mouse'. The female of the species measures 1 cubit and one palm. Apparently the bite victim can be saved if he makes it through the first three days, but he will suffer from a fever for nine days. The opening of the bite wound, according to Paragraph 18 of the *Brooklyn Papyrus*, resembles a raisin.

[74] All English translations in parentheses are by Wendy Golding unless otherwise noted.

Sauneron's proposal of the Persian horned viper / False horned viper[75] (*Pseudocerastes persicus*) seems to be accepted by Nunn (2002:185) with a suggestion that it may also have been a 'hornless variant' of *Cerastes cerastes*, the Sahara horned viper[76]. Indeed over 50% of *Cerastes cerastes* are hornless (El Din 2006:288). The suggestion made by Brix (2010:566) was also that of the *Pseudocerastes persicus*.

The description of the big head versus the narrow neck is typical of a member of the viperid group, which indicates large venom glands. Spawls & Branch (1995:133) describe the *Pseudocerastes persicus* as having a broad head with a thin neck.

The Papyrus describes the snake as being the colour of a quail – a description which appears more than once in the Papyrus in the snake descriptions. The background colour of the *Pseudocerastes persicus* tends towards 'light brown, yellowish, pinkish or grey' and has 'blotched or cross-bands' in darker reddish or brown colours (Spawls & Branch 1995:133). The snake will have an overall uniform colour in the absence of these bands or blotches.

The description of the snake having a tail like a mouse suggests that the tail was sufficiently different from the rest of the body to be noticed. The tail of *Pseudocerastes persicus* often has a black tip (Spawls & Branch 1995:133). The snake can side-wind and makes a hissing sound when its keeled scales are rubbed together.

Pseudocerastes persicus is described by Spawls & Branch (1995:133) as a small viper; averaging 40–70 cm in length but one that can reach 80 cm. O'Shea (2011:62) also gives the length as 40–70 cm. In Paragraph 21 of the *Brooklyn Papyrus* we read of the nebed snake which has a length of a cubit and a half and whose size is likened by the scribe to that of the ka-en-am (Sauneron 1989:15). A cubit is 52.5 cm and a half cubit would be 26.25 cm. Therefore the nebed is approximately 78.75 cm in length. Sauneron (1989:13–14) comments on the difficulty in reading the sign relating to the size and suggests that it may be a palm. A palm is 7.5 cm. So if the ka-en-am is a cubit and a palm, then it would be approximately 60 cm in length. This would fit in with the average size of a *Pseudocerastes persicus*.

[75] The Persian horned viper is also known as the Persian viper or the False horned viper.
[76] The Sahara horned viper is also known as the Desert horned viper. Nunn (2002:185) refers to it as the Desert horned viper. The name 'Sahara horned viper' is the name that arises most frequently in literature on snakes.

Pseudocerastes persicus has two subspecies: *Pseudocerastes persicus persicus* and *Pseudocerastes persicus fieldi*. The difference between their distribution and venom composition does not seem to have been considered by Sauneron (1989), Nunn (2002) or Brix (2010). The subspecies *Pseudocerastes persicus fieldi* has neurotoxin in the venom and is therefore more dangerous, say Spawls & Branch (1995:134), and its venom lacks haemorrhagins. A bite may be lethal owing to its neurotoxic component and could cause a flaccid paralysis. Sauneron (1989:13) believes that the description of the bite wound as a raisin indicates ulceration or necrosis.

Modern-day distribution of *Pseudocerastes persicus fieldi* in Egypt occurs in the Sinai region (Spawls & Branch 1995:134), while *Pseudocerastes persicus persicus* is found to the east of Egypt, further into the Middle East. The *Pseudocerastes* more likely to have been encountered by the ancient Egyptians would be the *Pseudocerastes persicus fieldi*. This distribution suggests that *Pseudocerastes persicus fieldi* may not have been present in the area we see as modern-day Egypt. However, the ancient Egyptians would have encountered it on mining expeditions into the Sinai region, or during movements of troops or trade expeditions between Egypt and the Syrio-Palestinian regions. Nevertheless, the presence of neurotoxin in the venom could probably rule out *Pseudocerastes persicus fieldi* as the ka-en-am snake.

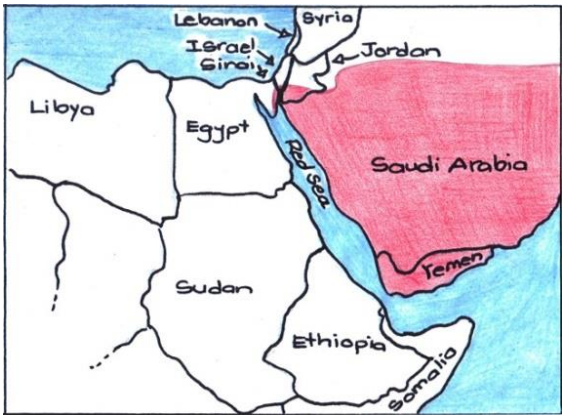
Could this ka-en-am be anything else? The Arabian horned viper (*Cerastes gasperetti*) (see Figures 11 and 12 below), does not always have horns and although it is found to the east of Egypt, it does also occur in the Sinai (O'Shea 2011:61). In the name of this ka-en-am snake, the word *ꜥm/ꜥɜm* indicates 'one of Asia' or even *Semit* (a Semite) or *Kanaaniter* (a Canaanite) (Hannig 2006:142). This may well be a reference to a snake that falls just outside Egypt's African territory. The distribution of the *Cerastes gasperetti* fits this possibility. Its size is given as 60–80 cm, so it is larger than the *Pseudocerastes persicus fieldi*. The venom contains procoagulants and haemorrhagins (O'Shea 2011:61). It is noted by O'Shea (2011:62) that the *Pseudocerastes persicus fieldi* is similar to the *Cerastes gasperetti*, and Mattison (2007:219) says that the horns are absent in some populations of this snake (see Figure 12 below) and that their bites are rarely fatal.

Figure 11: *Cerastes gasperetti* – horned variety[77]

Figure 12: *Cerastes gasperetti* – hornless variety [78]

Like the *Pseudocerastes persicus fieldi*, the *Cerastes gasperetti* is described in Spawls & Branch (1995:123) as having a broad head and a thin neck, and some of the vipers do not have the horn above the eye (see Figure 12 above). The tail of this viper is short and it may be black-tipped (Spawls & Branch 1995:123–124). Again we have a description of a tail that is noticeably different from the rest of the body.

The body colouring and blotch patterns described by Spawls & Branch (1995:123) are very similar to that of the *Pseudocerastes persicus fieldi*. The background colour can be 'yellowish, biscuit-coloured, reddish or greyish-brown'. The blotches of darker colour appear along the back.



Map 3: Distribution of *Cerastes gasperetti*[79]

What makes the *Cerastes gasperetti* an unlikely candidate for the ka-en-am snake, or for any of the *Brooklyn Papyrus* snakes, is its distribution, unless one takes into account the fact that

[77] Photograph of Arabian horned viper (*Cerastes gasperetti*) courtesy of Dr Tony Phelps.
[78] Photograph of Arabian horned viper (*Cerastes gasperetti*) courtesy of Dr Tony Phelps.
[79] Map 3 created by Wendy Golding based on the map in Shupe (2013:122)

the compiler of the information of the original papyrus realised that this was a snake found outside of mainland Africa, hence the word *ꜥm/ꜥɜm* in the name of the snake. *Cerastes gasperetti* does not occur on mainland Africa, but is found on the very eastern edge of the Sinai Peninsula and southwards towards Iran (see Map 3 above). It does remain a possibility, however.

Spawls & Branch (1995:124) do mention a point that suggests that one now turns to *Cerastes cerastes* as a possibility for the ka-en-am snake. They say that the *Cerastes gasperetti* bite is probably similar to that of the *Cerastes cerastes*, which shows swelling and bleeding at the bite site with a possibility of necrosis at the bite entry. This brings one back to the description in the Papyrus of the opening of the bite resembling a raisin and Sauneron's (1989:13) belief that this describes necrosis taking place.

In *Cerastes cerastes* we have another viper with a broad head and a thin neck. Although generally found with a horn above each eye, *Cerastes cerastes* does not always have horns. The length of the snake is generally 30–60 cm with a maximum length of 85 cm (Spawls & Branch 1995:121). Chippaux (2006:253) puts the length at 35–73 cm, while O'Shea (2011:81) gives the maximum length as 60–90 cm. These length assessments would match the length of the ka-en-am snake. The colour description is much the same as for *Pseudocerastes persicus fieldi* and the *Cerastes gasperetti*. Some may have a short black tail.

With regard to distribution, *Cerastes cerastes* provides a much better candidate than the *Pseudocerastes persicus fieldi* for the ka-en-am snake. It is found across the Sahara from Egypt westwards to North Africa and it does also occur in the Sinai Peninsula (Chippaux 2006:252; Spawls & Branch 1995:123). The venom is said by Spawls & Branch (1995:123) to cause swelling and bleeding, and it is possible for necrosis to develop at the site of the bite wound. while death from its bite is not common, the victim is likely to experience nausea and vomiting.

The only other snake to consider here would be the Sahara Sand Viper, or *Cerastes vipera*. This snake does not have horns (Mattison 2007:219), and it is found in the same areas as the *Cerastes cerastes*, from Egypt westwards to Mauritania (Chippaux 2006:252). Spawls & Branch (1995:125) give a similar distribution: westwards from the Sinai to Morocco, to northern Mali and Niger. The snake does not seem to occur in south-east Egypt. Just like the

other vipers described above, it has a broad head and a thin neck, and its tail often has a black tip and the snake's colour is a light brown, cream or yellowish background with blotches and spots that are pale brown (Spawls & Branch 1995:125). The maximum length of the *Cerastes vipera*, according to Chippaux (2006:252), is 49 cm, with an average of 25 cm. Spawls & Branch (1995:125) give the maximum size as 48 cm with an average size of 20–35 cm. This snake, therefore, does not fit the size requirement for the ka-en-am because it is too small.

One must consider that the *Cerastes gasperetti* is a much more likely candidate for the ka-en-am snake than *Pseudocerastes persicus fieldi* based on its venom type and the description of the bite wound. There is no doubt that it fits the physical description. *Cerastes cerastes* is also a possibility, but *Cerastes vipera* is too small to be considered. Because of the reference to *ꜥm/ꜥɜm,* which suggests a snake to the east of Egypt (see Map 3 above), one may strongly consider *Cerastes gasperetti* to be the ka-en-am snake.

6.3.2 The Sedeb snake (*sdb*)

Paragraph 20 of the *Brooklyn Papyrus* says of the sedeb (*sdb*) snake (see 5.2.7): 'regarding the sedeb, it is red like the sekhtef of Seth'. It has a small face, a narrow neck and yellow eyes. Furthermore 'the one who has been bitten by it loses his strength, his face is sweaty. Its bite is small and swollen; it festers. You can save him. This is a snake which is part of the mesou-bedesh family'.

The mesou-bedesh is probably one of the snakes in the missing first part of the Papyrus and it would have been helpful to identify it in order to provide another point for comparison.

A variant spelling of the word *sḏb* is given in Faulkner (1986:258), being *sdb* and meaning 'evil' or 'ill-willed'. This infers that one is dealing with a particularly nasty snake here.

Sauneron (1989:15) suggests the Burton's or Painted carpet viper (*Echis coloratus)* for this snake, but Nunn (2002:185) points out a 'bite from this snake is usually lethal' and the *Echis coloratus* does not have a yellow eye. However, the eye of the *Echis coloratus* could be

considered a dull yellow and, furthermore, Spawls & Branch (1995:132) describe the eyes as prominent and having a yellow or silvery coloured iris.

Echis coloratus is described in Spawls & Branch (1995:132) as being variable in colour. Those from eastern Egypt and the Sinai tend to have a pale grey, brownish or biscuit-coloured background on which the grey or whitish 'saddle' markings are found, with rufous patches between these markings. The background colour, according to O'Shea (2011:62), is 'pastel grey or brown' and its distribution is the Western Arabian Peninsula, the Sinai and the far north-west of Africa. Spawls & Branch (1995:132) have *Echis coloratus* appearing in eastern Egypt and the Sinai, and the snake is not even mentioned by Chippaux. Spawls & Branch (1995:133) say that fatalities resulting from a bite are rare. The venom seems to have a procoagulant effect and contains no major neurotoxins, while the bite causes pain and swelling at the bite location. The venom, according to O'Shea (2011:62) contains procoagulants, haemorrhagins and also cytotoxins.

Sauneron (1989:152) admits that there is not really sufficient evidence to give a positive identification, but the fact that the same treatment for a bite of the ti-am snake in Paragraph 51 of the *Brooklyn Papyrus* is given for the sedeb in Paragraph 52 makes him think that the sedeb is a viper. The Papyrus notes that it has a small neck so one must consider that there is enough differentiation between the head and the neck for this observation to have been made.

Warrell suggested to Nunn (2002:185) that it may be the Javelin Sand Boa (*Eryx jaculus*) because it is non-venomous and fits the description. *Eryx jaculus* does indeed have a small face, but can have a dark eye or one the same colour as *Echis coloratus*. There appears to be no differentiation between the head and body of *Eryx jaculus* – in other words there is no discernible neck. This would rule it out as a possibility. In Mattison (2007:207) we read that *Eryx jaculus* specimens can range in colour from reddish to orange, yellow or brownish and that their colour is dependent on the soil where they live.

The *Brooklyn Papyrus* comments that the victim can be saved. This suggests that there is a reaction to the venom and that treatment is required. In fact Paragraphs 48 a, b and c, and Paragraph 52 of the *Brooklyn Papyrus* are the specific treatments for a bite from the sedeb snake. We must not ignore the fact that the snake is described as 'red like the sekhtef of Seth' and as being part of the mesou-bedesh family.

One's immediate reaction is that this could be the red spitting cobra (*Naja pallida*), based on the colour. Spawls & Branch (1995:76–77) describe *Naja pallida* as a small cobra with a smallish head. The colour can vary depending on location, from red or orange in northern Tanzania and eastern and southern Kenya. The cobra may be anything from a pale red, pinkish, red brown to steel grey in other areas. Those from Egypt may be an olive-brown colour. No mention is made by Spawls & Branch of the eye colour but on pictures that I have looked at, the eye does not appear to be yellow. The snake's distribution in Egypt according to Spawls & Branch (1995:77), is along the Nile in areas where there is vegetation, as it is not a desert snake. The colour of the *Naja pallida* found in Egypt and the lack of a yellow eye would seem to rule it out as a possibility for the sedeb.

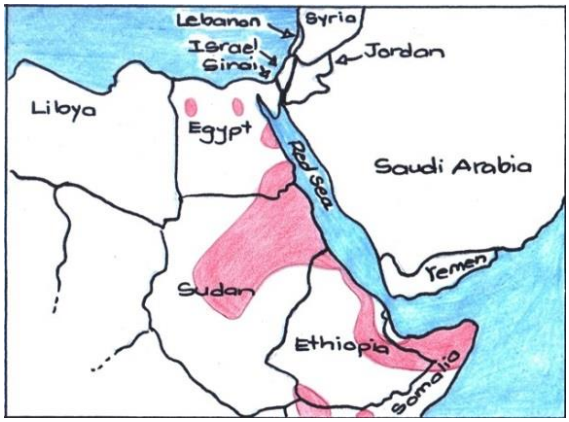
Figure 13: *Echis pyramidum*[80]

The yellow eye seems to be a key characteristic of this sedeb. Perhaps the snake is not uniformly red in colour, but the overall impression of colour is red, even if the snake is patterned. Indeed this is possible, as we find in Spawls & Branch (1995:126) a general description of the *Echis* species as 'grey, brown or reddish' in colour, and they are patterned. *Echis coloratus* occurs in Egypt, as does the North-east African carpet viper (*Echis pyramidum*) (see Figure 13 above). This is a small viper with a 'pear-shaped' head and a thin neck and it has yellow eyes. The background colour on which the patterns appear varies from yellowish, brown, grey to rufous (Spawls & Branch 1995:127). Chippaux (2006:254) describes the colour of the snake's back as '*sable ou latérite'*. 'Laterite' refers to an iron-rich soil that is blackish-brown to red on the surface, and lighter red, brown or yellow beneath the

[80] Photograph of the North-east African carpet viper (*Echis pyramidum*) courtesy of Johan Marais.

surface[81]; and *sable* means 'sand' or 'gravel'. This snake seems to be a distinct possibility for the sedeb.

A population does exist in the north of Egypt but not in the south, and it appears again from Sudan and southwards (see Map 4 below). Spawls & Branch (1995:128) say that not much is known about its venom but it may contain a strong and slow-acting anti-coagulant. Chippaux (2006:254) puts the location of *Echis pyramidum* from Egypt to Kenya and the Central African Republic.



Map 4: Distribution of *Echis pyramidum*[82]

For the sedeb, Brix (2010:370) suggests the Cross-barred snake (*Chamaetortus aulicis*), also known as the name of marbled tree snake (*Dipsadoboa aulica*). With the exception of Somalia, this is a snake of southern Africa, being found from Tanzania to Mozambique, Zimbabwe and the north-east of South Africa (The Reptile Database)[83]. It is described as uniformly brown. We cannot ignore that the sedeb is described as being red in colour. The snake is not mentioned in El Din (2006) as a snake that is found in modern-day Egypt, nor is it mentioned in Chippaux (2006) as a snake of Central or East Africa.

Brix (2010:376) does have a valid point to consider in saying that a bite from an *Echis* species snake can result in death without antivenom treatment. So perhaps the suggestions of *Echis coloratus* and *Echis pyramidum* may not be correct, because the Papyrus says that the bite victim of the sedeb can be saved. It is doubtful, though, that a non-venomous snake such as *Dipsadoboa aulica* can cause the bite effects mentioned.

[81] https://www.britannica.com/science/laterite (accessed 14th December 2019).
[82] Map 4 created by Wendy Golding based on the map in Shupe (2013:181).
[83] http://www.reptile-database.org (accessed 20th May 2016).

Echis pyramidum provides a better candidate for the sedeb at this point than *Echis coloratus*, *Eryx jaculus*, *Dipsadoboa aulica* or even *Naja pallida*. Its overall impression is of a reddish colour. It has the essential yellow eye and the thin neck as seen in Figure 13 above. It seems that one does not necessarily die of its bite, although it can cause fatalities. It may be, though, that one needs to look at other possibilities for this sedeb.

6.3.3 The Nebed snake (*nbd*)

In Paragraph 21 of the *Brooklyn Papyrus* we are presented with the nebed (*nbd*) snake (see 5.2.8). The Papyrus tells us that it is a cubit and a half in length. This is approximately 78.75 cm. Its sides and back are green and its stomach is pale, and its size is comparable to that of the ka-en-am (see 5.2.5 and 6.3.1). One who is bitten will not die from its bite, and the victim can be saved so exorcism is pointless.

Sauneron (1989:15) feels that there is insufficient information to attempt an identification of the nebed but considers the necklace grass snake (*Natrix natrix*). El Din (2006:251), however, states that the only snake of the *Natrix* genus found in Egypt today is the diced water snake (*Natrix tessellata*)[84]. Its back is olive green, it bears a black chevron on the nape of its neck, and there are black spots on its back. The largest one found in Egypt, according to El Din (2006:251), was 90 cm.

The Papyrus says that the victim can be saved and this would suggest that there is some kind of reaction on the part of the victim to the venom, and that treatment should be administered.

A possibility that one could consider for the nebed snake, owing to its green colouring, is the green night adder (*Causus resimus*). However, a better suggestion is made by Brix (2010:465), namely the Hairy bush viper (*Atheris hispida*). Her reasoning is largely based on the name of the snake. Its Egyptian name could have come from the verb *nbd*, which means to braid or plait, or to do one's hair. The word *nbd* in Faulkner (1986:140) means to plait or wrap up. The word *nbd* also has the meaning of 'hairdo' (Hannig 2006:429). So the

[84] I consulted with Professor Adel A. Ibrahim on the existence of pure green snakes in Egypt and he said that he was not aware of any. Personal email communication 2nd May 2016.

association with this snake seems to be hair – hence even its English name, the Hairy bush viper, and its species name, *hispidus*, meaning shaggy or rough. This snake has unusual keeled scales which end in points, (see Figure 14 below), giving the snake a hairy appearance.

Figure 14: *Atheris hispida*[85]

Atheris hispida is a green viper found today in the Democratic Republic of the Congo, Uganda and western Kenya (see Map 5 below) and is considered venomous (World Health Organisation 2010:115). However, it does not appear to be life-threateningly so. Branch (2014:23) says that it is restricted to forests in Uganda.

Map 5: Distribution of *Atheris hispida*[86]

Bites from the *Atheris* species seem to cause local swelling, pain and bruising. Its current distribution does not make it likely that it was encountered by the ancient Egyptians, but we must take movement of species due to changing climatic conditions and vegetation changes into account. Furthermore, we must remember that this nebed is the snake that does the

[85] Photograph of the Hairy bush viper/Rough bush viper (*Atheris hispida*) courtesy of Gert Jan Verspui.
[86] Map 5 created by Wendy Golding based on the map in Shupe (2013:179).

bidding of Hathor, a goddess associated with the colour green and bearing the title 'Lady of Punt'. The modern-day distribution of the *Atheris hispida* is directly west of the area which is traditionally thought to be where Punt lies. Taking these points into consideration, it is far more likely for the nebed snake to be the *Atheris hispida* suggested by Brix than a snake of the *Natrix* genus.

6.3.4 The Ti-am snake (*tj ꜥm*)

The hieroglyphs of Paragraph 22 of the *Brooklyn Papyrus* introduce this snake as a viper along with its name ti-am (*tj ꜥm*) which Sauneron (1989:3) refers to as an Asiatic viper in his translation (see 5.2.9). The identification allocated to the ti-am by Sauneron (1989:151) is *Pseudocerastes persicus fieldi*. In fact he suggests that the ka-en-am of Paragraph 18 of the *Brooklyn Papyrus* (1989:151) is the male of the species and therefore the snake is this paragraph would be the female. However, one must note that the feminine suffix pronoun is not used in the text of Paragraph 22 of the *Brooklyn Papyrus* when referring to the ti-am.

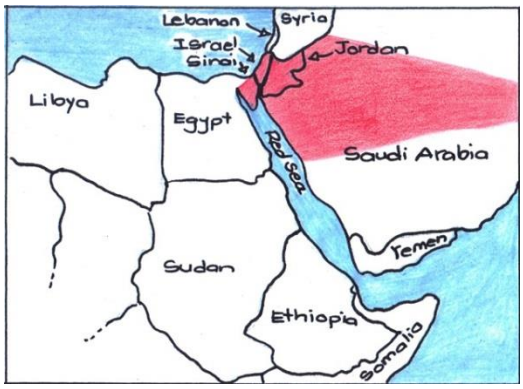
The ti-am is described as looking like a small henep snake (see 6.3.5 below) – which Paragraph 23 of the *Brooklyn Papyrus* describes as a snake pale in colour with a narrow neck, eyes which stand out, and four fangs and a thick tail. One bitten by either snake will suffer with a fever for seven and nine days respectively but will survive the bite. Nunn (2002:185) says that Warrell did not feel there was enough evidence to label the snake in Paragraph 22 as *Pseudocerastes persicus fieldi*. If this is the female of the ka-en-am then, according to my opinion on the identity of the ka-en-am, it would have to be *Cerastes gasperetti* or *Cerastes cerastes*.

However, the alternative is that it is not in fact the female of the ka-en-am, as suggested by Sauneron, but a different species altogether, namely the Sahara sand viper (*Cerastes vipera*), which is a smaller snake than the *Cerastes cerastes*, and Brix (2010:520) in fact identifies this snake as the *Cerastes vipera*.

Figure 15: *Pseudocerastes persicus fieldi*[87]

Figure 16: *Cerastes vipera*[88]

The Papyrus describes the ti-am as resembling a small pale henep. Figure 15 above shows the colouration of *Pseudocerastes persicus fieldi*. *Cerastes vipera* in Figure 16 is not as pale. Sauneron himself notes (1989:17) that the ti-am resembles the henep and that the henep is like a small mesou-bedesh and therefore the ti-am must be a small snake, although the reference to the mesou-bedesh may be related to external appearances, not necessarily to size. *Cerastes cerastes* and *Cerastes vipera* are very similar in appearance; with the latter being the smaller snake of the two. This leads one to another possibility, namely that Sauneron was entirely correct in labelling this ti-am as the *Pseudocerastes persicus fieldi*, a snake found to the east of Egypt (see Map 6 below).



Map 6: Distribution of *Pseudocerastes persicus fieldi*[89]

It is a distinct possibility that the ka-en-am and the ti-am are two different snakes and not the male and female of the *Pseudocerastes persicus fieldi*. One must take note of the fact that the viper determinative was used for ti-am but not for ka-en-am, which suggest two different snakes in the minds of the ancient Egyptians. To my mind the ka-en-am is *Cerastes*

[87] Photograph of the Persian horned viper (*Pseudoceraste persicus fieldi*) courtesy of Gert Jan Verspui.
[88] Photograph of the Sahara sand viper (*Cerastes vipera*) courtesy of Daniel Jablonski.
[89] Map 6 created by Wendy Golding based on the map in Shupe (2013:154).

gasperetti or *Cerastes cerastes*; and the colouration and size of the ti-am and the fact that it is venomous fits in with the probability of it being *Pseudocerastes persicus fieldi*.

6.3.5 The Henep snake (*ḥnp*)

Paragraph 23 of the *Brooklyn Papyrus* describes the henep (*ḥnp*) (see 5.2.10) as being pale like a lizard, with a narrow neck and a thick tail and prominent eyes. One may die from the bite of this snake, but, despite a fever for nine days, it was possible to save the bite victim.

This henep snake in Paragraph 23 was considered by Sauneron (1989:17) to be an Egyptian cat snake (*Telescopus obtusus*). Warrell (in Nunn 2002:185) felt it may have been a pale *Cerastes*. One must consider that the tentative identification by Sauneron is incorrect, as the *Telescopus* snakes are not dangerous to man (Mattison 2007:252) and the *Brooklyn Papyrus* clearly states that one bitten by the pale henep may die. Therefore, one needs to look at another suggestion such as the one made by Warrell.

The henep is believed by Brix (2010:239) to be the Sahara adder or *Macrovipera deserti*. However, the *Macrovipera deserti* does not give the impression of being a pale snake. The background body colour is 'greyish to dirty cream' with large dark blotches covering the body (Spawls & Branch 1995:139). Furthermore, its distribution area is extremely small: northern Tunisia, south of the Atlas Mountains and only the Dschabal Nafusa area of Libya (Spawls & Branch 1995:139). It is possible for the victim of the henep bite to die – which we know is a possibility with an *Echis* bite. No bites of the *Macrovipera deserti* are on record.

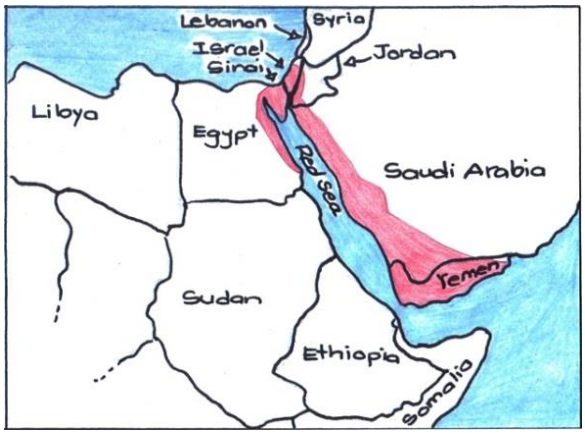
It is possible that this could be a snake of the *Echis* species, as they do tend to have a slightly prominent eye. In fact, Spawls & Branch (1995:132) comment that the *Echis coloratus* (painted saw-scaled viper, painted carpet viper) has a prominent eye. See Figure 17 below where the round eye is clearly noticeable closest to the camera in the Oman saw-scaled viper (*Echis omanensis*), which is almost identical to the *Echis coloratus* in Figures 18 and 19. One can see the bulge made by the eye on the side furthest from the camera.

Figure 17: *Echis omanensis*[90,]

Figure 18: Close-up of *Echis coloratus*[91]

Figure 19: *Echis coloratus*[92]

The distribution of *Echis coloratus* (see Map 7 below) indicates that it is much more likely to have been encountered by the ancient Egyptians than the *Macrovipera deserti*.



Map 7: Distribution of *Echis coloratus*[93]

[90] Photograph of the Oman saw-scaled viper (*Echis omanensis*) courtesy of Dr Tony Phelps.
[91] Photograph of the Burton's / Painted carpet viper (*Echis coloratus*) courtesy of Dr Wolfgang Wuster.
[92] Photograph of the Burton's / Painted carpet viper (*Echis coloratus*) courtesy of Dr Wolfgang Wuster.
[93] Map 7 created by Wendy Golding based on the map in Shupe (2013:150).

Echis coloratus fits the colour and physical description required of the henep, as does Warrell's suggestion of a pale *Cerastes*. Based on the description of the eye, *Echis coloratus* is a good contender for the identity of the henep snake.

6.3.6 The Red Henep snake (*ḥnp dšrt*)

The snake in Paragraph 24 of the *Brooklyn Papyrus* is the red henep snake (*ḥnp dšrt*) (see 5.2.11). The *Brooklyn Papyrus* describes the red henep as being entirely pale with lots of red spots on its back. It has a length of 1½ cubits, which would equate to approximately 78.75 cm as per the calculation in 6.2.1. The Papyrus describes the front of the head as being high, and the snake has a narrow neck and a thick tail. Its bite has three puncture wounds. The bite victim can become lethargic (in which case the Papyrus recommends striking the victim on the mouth with a piece of copper), and he will survive if he does not vomit. The bite victim will suffer a fever for nine days.

Although Sauneron (1989:164) felt that the identity was uncertain, he thought that the red henep may be an elapid based on the number of teeth. However, I think that its identity is to be found amongst the vipers. There is a comment in Paragraph 24 of the *Brooklyn Papyrus* that it does not see and it does not hear. This comment about not hearing does seem to be associated with vipers. In Psalms 58:5 the wicked are compared to the 'deaf adder that stoppeth her ear'. It is interesting to note that the male viper in Paragraph 31 of the *Brooklyn Papyrus* is described as resembling the red henep. The determinative for 'viper' is used in the hieroglyphics for this male snake. So it is unlikely that the red henep is an elapid. We need to look amongst the viperid group for its identity.

It is not likely that the red henep is *Echis pyramidum.* Its average length is too short, being 30–60 cm with a maximum of 85 cm, according to Spawls & Branch (1995:127), even though it has a pale body often covered with reddish or brown spots. Chippaux (2006:254) puts the length in the region of 70 cm. El Din (2006:291) describes the tail of an *Echis* as fairly short and the body as stocky.

While browsing through pictures of snakes it struck me that the Levantine viper (*Macrovipera lebitina*) could be a distinct possibility (see Figure 20 below). This is also the opinion of Brix (2010:551). This snake has five subspecies and the one found in North Africa is *Macrovipera lebetina transmediterranea*. In Figure 20 below one can quite clearly see the pale body colour beneath the numerous reddish spots of colour. Important to note in Figure 20 is the *canthus rostralis* mentioned in Spawls & Branch (1995:137). This is the ridge that runs from the tip of the snout to the top of the eye. This fits with the description in the Papyrus of the front of the head being high.

Figure 20: *Macrovipera lebitina*[94]

Of interest is the name of this snake, red henep. Sauneron (1989:20) says that the name *ḥnp* appears to be considered feminine. The suffix pronouns used in Paragraph 24 of the *Brooklyn Papyrus* when referring to the snake indicate that it is indeed feminine. However, I wondered if *ḥnp dšrt* was perhaps a genitive construction instead. The word *dšrt* means 'red land' while *dšr* refers to the colour red (Robbins 2003:59) – the feminine adjective is *dšrt*. The 'red land' to the ancient Egyptians was the desert. If *dšrt* was part of a genitive construction, then *ḥnp dšrt* could mean 'henep of the red land /desert' rather than 'red henep', which indicates that this is a snake that inhabits arid areas. Also worth taking into consideration is the notion that the desert was a thought to be a realm of chaos and the habitat of the god Seth (Robbins 2003:59), and in religious and magical texts the name of Seth was usually written in red ink.

[94] Photograph of the Levantine viper (*Macrovipera lebitina*) courtesy of Scott Shupe.

The desert was thought to be a manifestation of Seth due to its red colour (Gilli 2010:55). This red henep is described by the Papyrus as being from the phallus of Seth.

The range of *Macrovipera lebitina* in Africa, according to O'Shea (2011:59), is from Algeria to Tunisia. In Shupe (2013:145–146) the range is given as being from the eastern Mediterranean to India – but it is also mentioned that there are five subspecies. Today, the subspecies *Macrovipera lebitina transmediterranea* is only found in Algeria and Tunisia and is considered quite rare (World Health Organisation 2010:29). The *Macrovipera deserti* is very similar and has been considered both a subspecies of *Macrovipera lebitina* as well as a species in its own right.

The length of the red henep is approximately 78.75 cm. O'Shea (2011:59) gives the maximum length of *Macrovipera lebitina* as 2 m, while Spawls & Branch (1995:137) list its average length as around 1 m. Its venom contains procoagulants and haemorrhagins (O'Shea 2011:59), and possibly myotoxin (Shupe 2013:146). According to World Health Organisation (2010:117) the venom causes local bruising and swelling with possible haemostatic disorders. It is possible for the bite to result in death (Shupe 2013:146). Considering the general description of the snake and its bite effects, it is very possible that the red henep is *Macrovipera lebitina*.

6.3.7 The Fy snake (*fy*)

In Paragraph 26 of the *Brooklyn Papyrus* we are presented with a viper called fy (*fy*), literally 'viper' (see 5.2.13). The Papyrus indicates that it has an image of a lotus flower on top of its head. One bitten by this snake, according to the Papyrus, will apparently have spasms in all his limbs and a fever for seven days but will survive.

Sauneron (1989:22, 155) identifies this snake as *Echis carinatus* (see Figures 21 and 22 below), the previous classification of *Echis pyramidum*. It proves tricky to find the existence of *Echis carinatus* in Africa in recent literature. The reason for this is explained as follows in Spawls & Branch (1995:126). Originally all the *Echis* snakes were classified under either *Echis coloratus* or *Echis carinatus*. If one is searching for *Echis carinatus* one finds it more

associated with the Asian continent, whereas in Africa it has become divided into several subspecies which appear to have become species in their own right. The range of *Echis carinatus*, according to Spawls & Branch (1995:126), may have stretched originally from Sri Lanka in Asia to Mauritania in West Africa. Isolated populations of a species tend to undergo gradual genetic changes – hence the subspecies that are mentioned in current literature on snakes, rather than the *Echis carinatus*. It may seem confusing, but what was previously referred to as *Echis carinatus* in Africa until fairly recently was, in fact, *Echis pyramidum*. Hughes (1976:360–361) explains that *Echis pyramidum* (amongst others) had been considered as a subspecies of *Echis carinatus*. It is further addressed more recently by Pook *et al* (2009:793), who says that the *Echis* species has had a lengthy 'history of confusion and controversy' for a long while. They relate in their article that only *Echis coloratus* and *Echis carinatus* were recognised up until the 1970s. Between the 1960s and 1980s some of the populations were referred to as subspecies or separate species but no agreement could be reached. Research by Pook *et al* (2009:800) provided results that show *Echis* populations fall into four main species groups instead of two, and this includes *Echis pyramidum*. *Echis carinatus*, as it is currently classified, does not exist in Africa. The *Echis pyramidum*, therefore, only recently received its current status (Pook *et al* 2009)[95]. In earlier references it would have been called *Echis carinatus*, hence the use of the name by Sauneron and by Warrell in Nunn when referring to what is actually *Echis pyramidum*.

Sauneron's identification of the snake was based on the image of a lotus on the snake's head. Warrell (in Nunn 2002:185) concurs with him. We have nothing much to go, on other than the fact that this is a viper with a distinctive marking on its head. El Din (2006:294) mentions the arrow marking, which is sometimes broken, upon the head of the *Echis pyramidum*.

This marking, clearly seen in Figure 22 below, is described by Sauneron (1989:23) quoting Corkill's (1932:610) description of the 'bird's foot' marking upon the head of the *Echis carinatus*. Also clear in both Figures 21 and 22 below is the yellow eye and thin neck that seems to be a tendency of the *Echis* species in general and that was mentioned in connection with the sedeb. The little evidence that we have regarding this snake points to the likelihood of fy being *Echis pyramidum*.

[95] Personal email communication with Professor Graham Alexander, 1st April 2016.

Figure 21: *Echis carinatus* with pale markings[96]

Figure 22: *Echis carinatus* with bold markings[97]

Brix (2010:475) considers the fy to be Nitsche's bush viper (*Atheris nitchei*). It is also known as the Great Lakes bush viper, being found in East Africa, from Uganda to Lake Tanganyika (O'Shea 2011:82). It is referred to in Shupe (2013:179) as the Sedge bush viper. There seems to be no information on its venom (Shupe 2013:179). Brix (2010:477) says that there is only one snake in Egypt with the image of the blue lotus upon its head, and that is the *Atheris nitschei*. However, we do not know if this snake was ever in Egypt in the pharaonic era or if it was encountered in the countries that may have been travelled through, such as Sudan and Ethiopia. One must also consider that if fy was *Atheris nitschei*, the green colour of the snake would have been commented on, as snakes of this colour do not occur in Egypt and it would have been unusual, no matter where it was encountered.

One may consider that both sedeb and fy could be *Echis pyramidum*. Perhaps the ancient Egyptians differentiated between those with a strong head marking (as in Figure 22 above) and the more vague head marking (as in Figure 21 above) and perceived them as different snakes. Figures 21 and 22 are of the same species but the head markings differ. This may be why we have sedeb and fy as different snakes. Fy is the sedeb with the distinct head marking.

6.3.8 The Fy-nefet snake (*fy nft*)

According to the hieroglyphics this snake in Paragraph 27 of the *Brooklyn Papyrus* is a viper (see 5.2.14). Its name fy-netef-tjaw (*fy nft*) translates as 'the blowing viper'.

[96] Photograph of the Saw-scaled viper (*Echis carinatus*) courtesy of Dr Tony Phelps.
[97] Photograph of the Saw-scaled viper (*Echis carinatus*) courtesy of Dr Tony Phelps.

Of this fy-nefet snake, the *Brooklyn Papyrus* says 'be on your guard against it (lit. do not relax near it)! [One] can surely save (him) from it with magic spells and a remedy. The opening of the bite wound is [swollen (and) blood flows] from it copiously. His limb is affected up to the opening of his bite wound. One can perform an exorcism for him (the patient) and he lives, (for) one can exorcise (this) viper with magic spells'. This snake is described as having three spots of colour on the nape of its neck in blue and green and its movement is 'creeping', like no other snake. It emits a shrill sound in warning. If one is bitten, the wound bleeds and the limb becomes distorted. The patient can be saved through exorcism and the use of remedies, according to the *Brooklyn Papyrus*.

Sauneron (1989:24) thinks that the snake in this paragraph could be *Echis carinatus*. I would tend to agree with Warrell's assessment in Nunn (2002:185) that this should be considered to be the puff adder (*Bitis arientans*) (see Figure 23 below). Brix (2010:plate III) suggested *Echis coloratus*.

Figure 23: *Bitis arietans*[98]

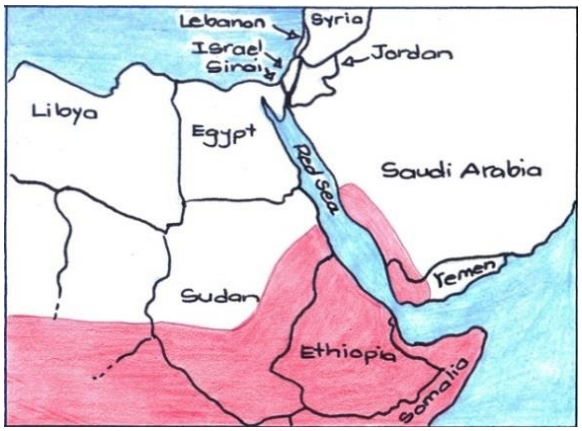
As Nunn (2002:185) points out, the noise emitted by the *Echis carinatus* is caused by the scales being rubbed together, whereas this fy-nefet specifically blows air. Its ancient Egyptian name is testimony to this. Spawls & Branch (1995:115) say the name 'puff adder' derives from its exhalations of air. O'Shea (2011:84) describes the movement of this snake as a 'caterpillar crawl' and Spawls & Branch (1995:115) say it has a slow 'caterpillar' mode of movement. This would indeed match the creeping type of movement described for the fy-nefet.

A *Bitis arietans* bite results in pain and swelling along with ecchymosis around the bite wound. Fluid-filled blisters (blebs) develop on the skin. Tissue necrosis is a possibility.

[98] Photograph of the puff adder (*Bitis arietans*) in the West Coast National Park, South Africa by Wendy Golding. 2015.

Lymphadenitis, or inflammation of the lymph glands, may develop, along with lymphangitis (an infection of the lymph system), according to Russell (1980:351). Nausea and vomiting may also occur. In Muller *et al* (2012:392) we learn that the bite of this snake results in pain at the site of the bite wound and swelling which progresses. This would seem to concur with the description of the swelling of a bitten limb in the *Brooklyn Papyrus*. Although the venom of *Bitis arietans* encourages clotting, it is apparently known that the functioning of blood platelets can become abnormal within 24–48 hours after a bite and this would indeed cause bleeding from the bite wound (in addition, bleeding in the tissues around the wound and within the body)[99]. This fits the description of the bite wound that 'flows with blood'.

Bitis arietans does not appear in modern-day Egypt[100]. One will find no mention of it in El Din, and neither Spawls and Branch (1995:115) nor Chippaux (2006:259) show the species as appearing in Egypt. Distribution of *Bitis arietans* according to Spawls & Branch (1995:115–116) is widespread throughout sub-Saharan Africa, from southern Sudan southwards (see Map 8 below). It also has a small distribution in northern Morocco and the Arabian Peninsula. One may ask how the fy-netef-tjaw could possibly be the *Bitis arietans*?



Map 8: Distribution of *Bitis arietans*[101]

One must remember that the ancient Egyptians travelled on expeditions for trade, conquest, mining and construction outside the borders of modern-day Egypt. They certainly travelled southwards for trade: gold came from Sudan; wood such as ebony was obtained in sub-Saharan Africa, and incense from Punt (Bleiberg 2006:1373–1374); panther skins and special oils were brought back from this region as well (Khurt 1995:144). Therefore, the likelihood

[99] Personal email communication with Dr Gerbus Muller, 26th January 2016.
[100] Personal email communication with Professor Adel A. Ibrahim, 2nd April 2016.
[101] Map 8 created by Wendy Golding based on the map in Shupe (2013:166).

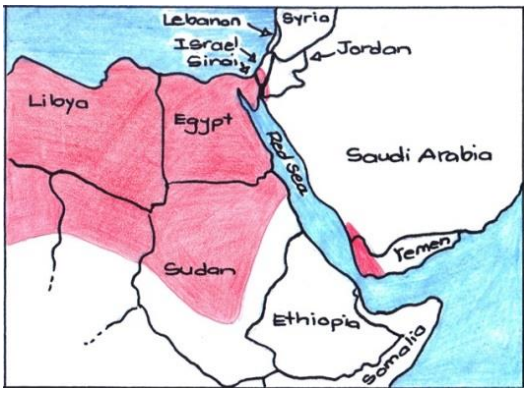
of this snake being encountered on expeditions is very good and it is highly possible that the fy-nefet is the *Bitis arietans*.

6.3.9 The Fy-her-debwy snake (*fy ḫr dbwj*)

The snake in Paragraph 28 of the *Brooklyn Papyrus* is a viper named fy-her-debwy (*fy ḫr dbwj)* – the viper with two horns (see 5.2.15).

This viper is described in the Papyrus as being the colour of a quail. On its forehead are two horns. It has a large head, a narrow neck and a thick tail. The Papyrus relates that if the bite opening is large the face of the victim swells. If it is small the victim will be rendered lifeless, have a fever for nine days but can survive. Abundant use of emetics to cause vomiting, and exorcising apparently draws the venom out.

In Paragraph 18 of the *Brooklyn Papyrus* (see 6.3.1 above) we have the ka-en-am which I believe is the hornless variant *Cerastes gasperetti* or *Cerastes cerastes*. ka-en-am is also the colour of a quail with a big head and a narrow neck. The victim suffers from a fever for nine days. The only difference between the ka-en-am and the fy-her-debwy in the Papyrus is that the ka-en-am is described as having a 'tail like a mouse' and the fy-her-debwy has a thick tail. Sauneron (1989:26) also notes this point. Spawls & Branch (1995:121) say that the tail of some snakes may have a black tip and perhaps that is why it was mentioned as having a 'tail like a mouse'. Chippaux (2006:252) comments that the tail is short.



Map 9: Distribution of *Cerastes cerastes*[102]

[102] Map 9 created by Wendy Golding based on the map in Shupe (2013:153).

Sauneron (1989:25) does not hesitate to identify the snake in Paragraph 28 as *Cerastes cerastes*, and Warrell (in Nunn 2002:186) agrees with this, as does Brix (2010:511). *Cerastes cerastes* and *Cerastes gasperetti* are fairly similar and Spawls & Branch (1995:122–123) indicate an overlap of territory in modern-day Egypt (refer to Map 3 in 6.3.1 and Map 9 above).

Both have eyes that are described as prominent and on the side of the head. Both species move in a sidewinding manner and are capable of rubbing their keeled scales together to produce a hissing sound. The photograph of the snake in Figure 24 below shows a keel-scaled snake in action, rubbing its scales against each other in warning. I observed this snake while it was doing this, at a snake awareness discussion in 2017, and the scales do indeed create a hissing sound.

Figure 24: *Dasypeltis scabra* rubbing scales[103]

Bite symptoms of *Cerastes cerastes* and *Cerastes gasperetti* include nausea and vomiting and there is swelling and bleeding at the site of the bite (Spawls & Branch 1995:123–124). The venom of *Cerastes cerastes* (see Figure 25 below) is known to be myotoxic and cardiotoxic. Death from a bite is not common (Spawls & Branch 1995:123), and the venom of *Cerastes gasperetti* is thought to be fairly similar (Spawls & Branch 1995:124).

[103] Photograph of the Rhombic egg-eater (*Dasypeltis scabra*) by Wendy Golding. 2017

Figure 25: *Cerastes cerastes*[104]

Based on the fact that the descriptions of ka-en-am and fy-her-debwy are so similar, it is likely that the latter snake mentioned here is *Cerastes cerastes*, with the horns for which it was named (see Figure 25 above). I think that it is also possible that because the *Cerastes cerastes* and the *Cerastes gasperetti* are so alike, the Priests of Serqet did not differentiate between the two species, seeing them as one. To my mind they differentiated between the horned and hornless variants of the two species instead, seeing them as two different types of snake.

6.3.10 The Fy-sher snake (*fy šr*)

Paragraph 29 of the *Brooklyn Papyrus* presents us with the 'little viper', fy-sher *(fy šr)* with the colour of a quail and no horns upon its head (see 5.2.16). Although the victim's limbs shake from the effects of the bite, one bitten by it can be saved, according to the *Brooklyn Papyrus*. Its ancient Egyptian name tells us that it is a little snake. Ordinarily, the determinative for a child  (A17 in Gardiner 1957:443) is used with the word *šr* to represent the adjective 'little', but here one finds the sparrow  (G37 in Gardiner 1957:471) instead, which may also be used as a determinative for the diminutive.

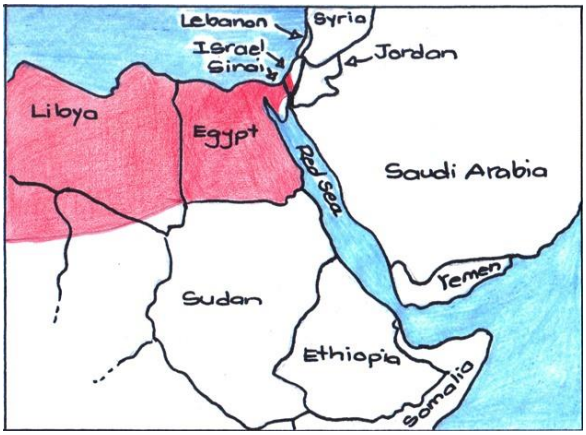
Sauneron (1989:26) suggests *Cerastes vipera* (see Figure 26 below) as a possibility for the fy-sher and this is agreed upon by Warrell (Nunn 2002:186) who also suggests an immature *Cerastes cerastes*. The *Cerastes* species move by sidewinding (Mattison 2007:219; Spawls & Branch 1995:121, 123), and they are described as bad-tempered and dangerous, but with a

[104] Photograph of the Sahara horned viper (*Cerastes cerastes*) courtesy of Scott Shupe.

bite that is seldom fatal to humans. *Cerastes vipera* is fairly similar in appearance to the *Cerastes cerastes* and *Cerastes gasperetti*, and it often has a black-tipped tail, as seen in Spawls & Branch (1995:125). It is mentioned in El Din (2006:290) that the female of this species has a short black-tipped tail, whereas the male has a longer tail the same colour as the dorsum. Like other vipers with keeled scales, the *Cerastes vipera* can rub its scales together to produce a hissing sound.

Figure 26: *Cerastes vipera*[105]

According to Spawls & Branch (1995:125), this little snake, which is distributed across Libya and Egypt (see map 10 below) reaches a maximum size of approximately 48 cm compared to the 85 cm of *Cerastes cerastes* and *Cerastes gasperetti*. One can agree, therefore, that being called the 'little viper' by the ancient Egyptians is quite apt and could point to the snake in Paragraph 29 as being identified as *Cerastes vipera*. Spawls & Branch (1995:125) say that there are no documented case histories and nothing much is known about the level of toxicity of its bite.



Map 10: Distribution of *Cerastes vipera*[106]

[105] Photograph of the Sahara sand viper (*Cerastes vipera*) courtesy of Dr Wolfgang Wuster.
[106] Map 10 created by Wendy Golding based on the map in Shupe (2013:14).

For fy-sher Brix (2010:579) suggests Lataste's Viper / Snub-nosed viper (*Vipera latastei*). Today *Vipera latastei*, which is predominantly found in the Iberian Peninsula, is only found in Africa in northern Morocco (Shupe 2013:175). Not much appears to be known about its bite. Its venom may contain procoagulants, and it measures 60–70 cm (O'Shea 2011:57).

Several vipers in the Papyrus have similar sized measurements, but the fy-sher is called the 'little viper' for a reason and that is because it is noticeably smaller than the others. For this reason *Cerastes vipera* can be considered as the best possibility to represent fy-sher.

6.3.11 Fy (*fy*)

The snake in Paragraph 30 of the *Brooklyn Papyrus* called fy (see 5.2.17). We have already come across a snake named fy in Paragraph 26, (see 6.2.7 above). The text pertaining to this snake is a little damaged but there is sufficient information to ascertain that the bite victim experiences swelling and that he can be saved.

My attempt at identification of this snake here relies completely on the fact that Sauneron (1989:27) thinks that the partially damaged word at the start of line seven may be *jbhty*. This word refers to a stone (Faulkner 1986:16). So it seems that this is a viper which resembles a stone of some sort.

Sauneron automatically aligns this snake with the fy of Paragraph 26 of the *Brooklyn Papyrus*. However, this particular fy resembles a stone (if Sauneron's assumption regarding the missing word is correct) whereas fy in Paragraph 26 has an image of a lotus on its head. The one who is bitten by the fy with the image on its head will experience a fever for seven days and have spasms, but one bitten by the fy which resembles a stone will experience swelling. So here we have two different bite reactions.

According to Brix (2010:499) it is possible that *jbhty* is green porphyry (see Figure 27 below) which was used to make snake amulets for protection[107]. Brix suggests that if the snake is being compared to a green stone, then the most likely candidate could be the Green night

[107] Brix obtained this information from the following source: Aufrère, S. 1991. *L'universe mineral dans la pensée égyptienne*. Cairo.

adder (*Causus resimus*) (see Figure 28 below). Apparently this snake has blue skin underneath its scales which become noticeable when the snake inflates its body in warning (Branch 2014:18).

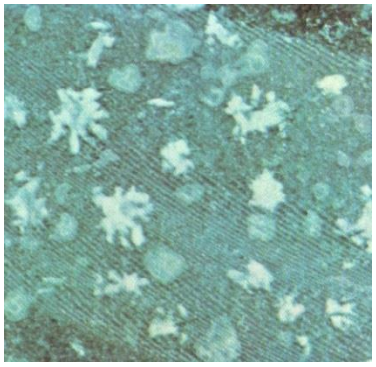


Figure 27: Green porphyry[108]

Figure 28: *Causus resimus*[109]

This snake may possibly be venomous, according to World Health Organisation (2010:117). *Causus resimus* is not found in Egypt today but could have been encountered by the ancient Egyptians in southern Sudan and Somalia, where it is found currently (Chippaux 2006:243) (see Map 11 below).

Map 11: Distribution of *Causus resimus*[110]

The World Health Organisation (2010:64) cites a case of a person bitten in Kenya who suffered a fever after a bite and also a child in Sudan who experienced mild local swelling and transient dizziness. General symptoms of bites by the *Causus* species cited by the World Health Organisation (2010:117) include local pain, swelling, lymphangitis and local necrosis.

[108] Photograph of green porphyry in Deeson (1973:225).
[109] Photograph of the Green night adder (*Causus resimus*) courtesy of Dr Wolfgang Wuster.
[110] Map 11 created by Wendy Golding based on the map in Shupe (2013:186).

We have scant information to go on and few options to choose from. This snake is definitely a viper, so *Natrix tessellata* is not a possibility, leaving *Causus resimus* as the best fit at this point, provided that the partially illegible word in the Brooklyn Papyrus text is *jbhty*, of course.

6.3.12 The Fy-tja-y snake (*fy ṯ3y*)

In Paragraph 31 of the *Brooklyn Papyrus* we find the fy-tja-y (*fy ṯ3y*), the male viper (see 5.2.18), which the *Brooklyn Papyrus* says resembles the red henep. Its bite produces a swelling around the wound but it does not bleed and the patient is not lethargic. The Papyrus recommends applying the knife for debridement. This would suggest that necrosis takes place.

Sauneron (1989:28) is of the opinion that no bleeding at the bite wound is an indicator that this fy-tja-y is most likely an elapid, and that this type of bite is an indicator of venom of the cobra type. However, the hieroglyphics indicate a viper similar to the red henep. If it were an elapid, the body shape and markings would be completely different. Brix (2010:Plate III) mentions the Tanganyika sand snake (*Psammophis tanganicus*) as a possibility but it is also not of the viperid group.

Figure 29: *Cerastes vipera*[111]

[111] Photograph of the Sahara sand viper (*Cerastes vipera*) courtesy of Daniel Jablonski.

El Din (2006:290) mentions that *Cerastes vipera* found along the Mediterranean coastal plain tends to be more reddish in colour than those found in other areas. Compare the snake in Figure 29 above with the snake in Figure 26. This reddish colour, to my mind, would make it a possibility for fy-tja-y, although it is not really clear in what way this snake 'resembles' the red henep. It is possible that fy-tja-y could well be a *Cerastes vipera* of the coastal plain (see Map 11 in 6.3.11 above).

6.3.13 The Hefaw-nefet snake (*ḥfꜣw nft*)

The name of this snake in Paragraph 33 (see 5.2.20) of the *Brooklyn Papyrus* is more or less the same as the fy-nefet (blowing viper) of Paragraph 27, being hefaw-nefet (blowing snake).

At first glance one may be inclined to think that it is also a *Bitis arietans*, but there is a distinct difference in the description of the snake's movement. This snake has a sideways movement whereas *Bitis arietans* has a caterpillar crawl or creeping movement. Both Sauneron (1989:30) and Warrell (in Nunn 2002:186) think this could be an *Echis*, but Brix (2010:477) feels that it is *Bitis arietans*.

The sound that is made by this snake is described in the Papyrus as being similar to the resonant noise made by a glassblower in a forge. The scales of the *Echis* snakes are 'heavily keeled' so that they make a rasping sound when the snake coils up and rubs them together. O'Shea (2011:63) mentions the sawing sound made by the scales rubbing together.

The snake is described as having the colour of a quail. After being bitten the patient can be saved, but suffers from a drooping and closing of the eyelids and saliva runs from his mouth (see Paragraph 33 of the *Brooklyn Papyrus*, 5.2.20). Saliva running from the mouth could suggest nausea, or it may even be caused by the inability to swallow, suggesting venom that may have a neurotoxic component. It brings to mind the progressive flaccid paralysis that can occur with a neurotoxic bite. The venom of the *Echis coloratus* and the *Echis pyramidum* does not seem to contain neurotoxins, but the venom of the *Pseudocerates persicus fieldi* does (Spawls & Branch 1995:135; O'Shea 2011:62), and *Pseudocerates persicus fieldi* is able to sidewind and also hisses loudly when angry (Spawls & Branch 1995:134). The

neurotoxic element in *Bitis arietans* venom, however, apparently has minimal effect (Spawls & Branch 1995:116).

It is possible, therefore, that hefaw-nefet is *Pseudocerates persicus fieldi* rather than one of the *Echis* species or *Bitis arietans*.

6.3.14 The Ro-bedjadja snake (*r bḏꜣḏꜣ*)

The ro-bedjadja (*r bḏꜣḏꜣ)* snake in Paragraph 35 (see 5.2.22) of the *Brooklyn Papyrus* is described as a black snake like the mesou-bedesh. Unfortunately, there is text missing so we do not know what the effects of the bite are. Sauneron (1986:32) thinks that the snake could be a cobra of sorts and Warrell (in Nunn 2002:186) takes this a step further by suggesting the black desert cobra (*Walerinnesia aegyptica*) or a burrowing asp (*Atractaspis microlepidota*). Three other snakes have already been compared to the mesou-bedech in the *Brooklyn Papyrus*: sedeb, henep and ti-am. These are all vipers. Consequently, one should be looking for a dark-coloured viper. In Shupe (2013:154) one finds a picture of a dark *Pseudocerastes persicus fieldi* (see Figure 30 below) which is very dark, almost black in colour, and it is said in Shupe (2013:154) that *Pseudocerastes persicus fieldi* from areas where lava deposits exist are dark in colour.

Figure 30: *Pseudocerastes persicus fieldi*[112]

[112] Photograph of Persian horned viper (*Pseudocerastes persicus fieldi*) courtesy of David Hegner.

When compared with the ti-am (which I believe to be *Pseudocerastes persicus fieldi*), it appears to be a completely different snake. I am convinced, though, that the ro-bedjadja is a viper because the other snakes compared to the mesou-bedesh are vipers and for this reason I have placed this 'difficult to identify' snake in the viperid group. Furthermore, I feel that as the *Pseudocerastes persicus fieldi* is the only viper close to black in colour in the region, that it represents the ro-bedjadja. My opinion is that the ti-am and the ro-bedjadja are both variants of *Pseudocerastes persicus fieldi.*

6.4 ELAPIDS

The next few snakes that I will attempt to identify fall into the elapid group. The Papyrus does not have a specific determinative for snakes from the elapid group, other than the determinative used with most snakes. It seems that a differentiation was only made between snakes of the viper group and snakes of the other groups.

Cobras appear in the elapid family of snakes and all elapids are venomous (Alexander & Marais 2007:143). Cobra bites in general can be quite varied (Russell 1980:362). Two genera of *Elapidae* are found in present day Egypt, being *Naja* and *Walterinnesia* (El Din 2006:278).

It is a mistake to think that cobra venoms are purely neurotoxic (White 2005:1055). They are not: venoms can be a complex mixture of substances. Bites of a cobra can in fact cause blisters in the vicinity of the bite wound, and deep tissue necrosis (White 2005:1063). Some cobras, such as the Forest cobra (*Naja melanoleuca*), have venom that may be cytotoxic rather than neurotoxic (Spawls & Branch 1995:76), or, in the case of the Black-necked spitting cobra (*Naja nigricolis*), have a neurotoxic effect with tissue necrosis (Spawls & Branch 1995:80).

6.4.1 Unnamed elapid

The hieroglyphic text containing the name of this snake in Paragraph 14 of the *Brooklyn Papyrus* is missing (see 5.2.1).

The bite of this snake causes loss of strength to the victim and ulcerations appear around a swollen bite wound but the victim can be saved with treatment. The *Brooklyn Papyrus* tells us that this snake 'belongs' to the same group as the khet-watet and the ka-nay snakes. One

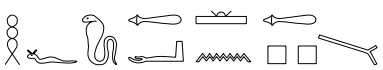
must presume that these two snakes were listed somewhere in the lost portion of the Papyrus, in Paragraphs 1–13, as they do not appear in any of the extant paragraphs.

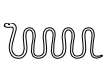
Nunn (2002:185) mentions the possibility that this unnamed snake could be the red spitting cobra (*Naja pallida*), based on the description of the bite. We know from Muller *et al* (2012:363) that the symptoms of a spitting cobra bite can be very much like those of a big adder bite. Paragraph 14 says that there are ulcerations around the swollen bite wound and this is likely due to the cytotoxin in the spitting cobra venom. On this basis one could also suggest that the Nubian spitting cobra (*Naja nubiae*) is a possibility. According to the World Health Organisation (2010:113), the venom of the *Naja nubiae* is strongly cytotoxic and can cause severe necrosis. We are informed by Chippaux (2006:228) that it also contains neurotoxins which can cause paralysis of the skeletal muscles.

Sauneron (1989:164) seems to think that this snake may be an elapid, but does not propose a possibility as there is too little evidence to go on. Brix (2010:406) also thinks that this is an elapid and proposes the Egyptian Cobra (*Naja haje*). However, considering the highly neurotoxic elements of its venom, I would think this is unlikely as the Papyrus mentions that the victim can be saved with treatment.

If this unnamed snake is an elapid, then I would tend to suggest either *Naja pallida* or *Naja nubiae* based on the bite description but because the Papyrus is very specific about the following snake in Paragraph 15 having a red colour, one might tend to favour the *Naja nubiae* as the possible identity of the snake in Paragraph 14 (see Figures 38 and 39 in 6.4.6 below).

6.4.2 The Hefaw aa en Apep (*ḥfꜣw ꜥꜣ n ꜥꜣpp*)



The name of the snake in Paragraph 15 of the *Brooklyn Papyrus* translates as ‘the great snake of Apep’ (Apophis)[113] (see 5.2.2). Ordinarily the name of Apep is followed by  but in this Papyrus it is followed by  . In Gardiner’s sign list this hieroglyph is Z6, which is a determinative for ‘death’ or ‘enemy’ (Gardiner 1957:537). It is also similar to, and

[113] Apophis is the Greek rendering of the name *app* or Apep.

sometimes confused with,  F20 (Gardiner 1957:463) which is the determinative for actions associated with the tongue, causing one to think of the flickering tongue of a serpent. This hieroglyph is sometimes used instead of Z6 (Allen 2005a:430,447). Apep (or Apophis), one could conclude, is the enemy. He is the snake of the underworld, the peril faced by the sun god Ra on his nightly journey through this realm.

The Papyrus describes this snake as being completely red with a pale stomach and four fangs in its mouth. One who is bitten by it dies instantly.

Sauneron (1989:9) says that the identity of this snake is uncertain. Nunn (2002:185) feels that there is no Egyptian snake that matches the description of the snake in Paragraph 15. Suggestions of the non- or mildly venomous varieties made by Nunn (2002:185) are all colubrids and include the Desert racer / Cliff racer (*Coluber rhodorhachis*) and the False cobra / Hooded malpolon (*Malpolon moilensis*). Sauneron's suggestions (1989:148–149) include the Black-headed ground snake (*Oligodon melancephalus*), the North-African cat snake (*Telescopus obtusus*), and the Diadem snake (*Zamenis diadema*). *Malpolon* bites can produce local swelling and nausea (Mattison 2007:245).

However, I feel that these suggestions ignore the description of a red snake whose bite can clearly cause death. In order for a snake to be described as the 'great snake of Apep' it must really be one that provides a threat of death. Perhaps the reference to instant death is an exaggeration. I would suggest *Naja pallida* (see Figure 31 below) for the great snake of Apep. This is also suggested by Brix (2010: 457).

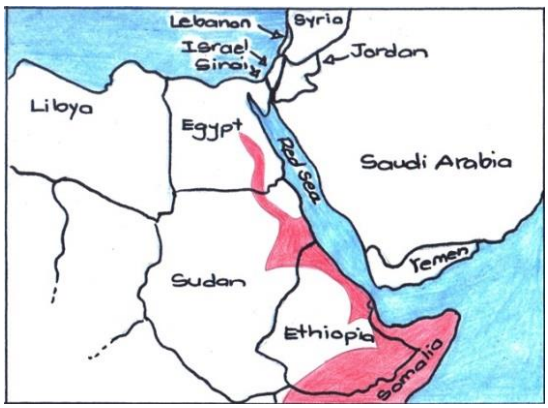
Figure 31: Juvenile *Naja pallida*[114]

Figure 32: Adult *Naja pallida*[115]

[114] Photograph of the red spitting cobra (juvenile) (*Naja pallida*) courtesy of Dr Tony Phelps.
[115] Photograph of the red spitting cobra (adult) (*Naja pallida*) courtesy of Scott Shupe.

As *Naja pallida* matures it becomes darker in colour and the band across the neck becomes less distinct. This contrast in colour can be seen in Figures 31 and 32 (above). Spawls & Branch (1995:78) say that not much is known about the toxicity of its venom. It usually spits rather than bites. Apparently in Somalia its bite is not considered fatal and the victims are generally given emetics. In Spawls & Branch (1995:76) it is described as having a small head and large eyes. Occasionally it has a white throat. The *Naja pallida* in Egypt can also be olive-brown rather than red.

Today *Naja pallida* is found in the Nile Valley in Egypt, and in the eastern parts of Sudan and Ethiopia, as well as Eritrea and Somalia (Spawls & Branch 1995:77) as per Map 12 below. This is, therefore, a snake that could have been encountered on expeditions.



Map 12: Distribution of *Naja pallida*[116]

The venom of the *Naja pallida* contains postsynaptic neurotoxin and cytotoxin (O'Shea 2011:74) and a few fatalities have been recorded. The World Health Organisation (2010:113) informs us that bites of the *Naja pallida* are not well-documented, but that this snake (World Health Organisation 2010:7, 8) is categorised as one that can impose 'serious or life-threatening envenoming' (World Health Organisation 2010:3).

For lack of a better alternative, one is tempted to identify the great snake of Apep as a Red *Naja pallida*.

[116] Map 12 created by Wendy Golding based on the map in Shupe (2013:193).

6.4.3 The Gany snake (*gꜣnj*)

Paragraph 16 of the *Brooklyn Papyrus* describes the gany (*gꜣnj*) snake (see 5.2.3) as being entirely black in colour. According to the *Brooklyn Papyrus* the victim dies rapidly and exorcism is pointless. The snake has a small head and a large snout. Its bite is like the bite of Apep.

The Black desert cobra (*Walterinnesia aegyptica*) (see Figure 33 below) is suggested by Sauneron and this concurs with Warrell's opinion (in Nunn 2002:185). According to Spawls & Branch (1995:87) the venom of *Walterinnesia aegyptica* is neurotoxic and can be fatal. The snake hisses when disturbed and the manner of death of the victim is apparently fairly similar to that caused by a fatal *Naja haje* bite.[117] In the Sinai, say Spawls & Branch (1995:87) it can be confused with the Small-scaled burrowing asp (*Atractaspis microlepidota*) (see Figure 34). The Palestine burrowing asp (Ein Geddi / Israeli Burrowing Asp) (*Atractaspis engaddensis*) is also known by the scientific name *Atractaspis microlepidota engaddensis* (El Din 2006:284) as it is considered to be a sub-species of *Atractaspis microlepidota*.

Figure 33: *Walterinnesia aegyptica*[118]

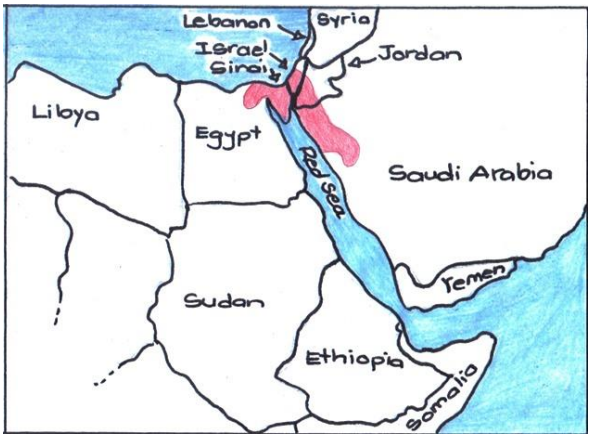
Warrell (in Nunn 2002:185) in fact suggests *Atractaspis microlepidota* as a possibility for the gany snake. It is a black snake whose bite causes pain and swelling at the site of the bite, and can be accompanied by nausea, vomiting and diarrhoea (Spawls & Branch 1995:38). It can

[117] See 6.4.4 for commentary on the bite of *Naja Haje*.
[118] Photograph of the Black desert cobra (*Walterinnesia aegyptica*) courtesy of Gert Jan Verspui.

also result in rapid death. O'Shea (2011:66) says that in Somalia it has earned the name of 'seven steps' and 'father of ten minutes' due to the speed at which death in humans can occur – which may be within six hours. These nicknames for the snake are also given in Spawls & Branch (1995:38).

Figure 34: *Atractaspis microlepidota*[119]

I think that either snake may be a possibility here – *Walterinnesia aegyptica* or *Atractaspis microlepidota*, which is obviously not a cobra. *Walterinnesia aegyptica* is found in the north-eastern desert in Egypt and in the Sinai (El Din 2006:283) (see Map 13 below), while *Atractaspis microlepidota* is found in the southern Sinai (El Din 2006:285). It is important to note that Spawls & Branch (1995:87) say that in mainland Egypt there is no other black snake. This would then rule out the *Naja nigricollis* suggested by Brix (2010:Plate III), unless the gany was a snake encountered outside of Egypt. The distribution of *Walterinnesia aegyptica* makes it a more likely candidate for the gany.



Map 13: Distribution of *Walterinnesia aegyptica*[120]

[119] Photograph of the Small-scaled burrowing asp (*Atractaspis microlepidota*) by Kristin Wiley, courtesy of the Kentucky Reptile Zoo.
[120] Map 13 created by Wendy Golding based on the map in Shupe (2013:156).

The Papyrus says its bite is like that of the snake of Apep. We do not know what species of snake Apep himself is. We do know that he is the enemy of the sun god Ra and that he does his utmost to kill him. To all intents and purposes, Apep is a mythological representative of the enemy and of death. Therefore, a snake whose bite is compared to that of Apep would seem to represent death and be very capable of causing it. Brix (2010:439) says that the gany is being compared to the snake in Paragraph 15 of the *Brooklyn Papyrus*, which is the great snake of Apep. In my opinion the text in the Papyrus is comparing it to Apep himself.

If the great snake of Apep in Paragraph 16 of the *Brooklyn Papyrus* is a cobra, then this gany is likely to be a cobra as well. *Walterinnesia aegyptica* has postsynaptic neurotoxins in its venom (O'Shea 2011:65) and fatalities are likely. This is echoed by the World Health Organisation (2010:114) where we read that the bite causes local pain and swelling and that deaths have been reported. I believe that the gany is more likely to be *Walterinnesia aegyptica* as it fits the description of having a small head and a large snout better than *Atractaspis microlepidota* (see Figure 34 above).

6.4.4 The Ikher snake (*jḫr*)

Paragraph 17 of the *Brooklyn Papyrus* presents the ikher (*jḫr*) snake (see 5.2.4) – a long dark snake whose bite causes a rapid death in the one who has been bitten. However, it is noted in the *Brooklyn Papyrus* that if the snake suffers from lethargy, it is possible for the patient to survive – presumably because the venom is not as strong.

Sauneron (1989:12) tentatively suggests a snake of the *Zamenis* genus (colubrid snakes) as a possibility, acknowledging that these snakes are not lethal. Nunn (2002) makes no comment on the identity of the ikher snake. However, one has to look at the cobras or a snake with neurotoxic or myotoxic venom that has the ability to cause rapid death.

Brix (2010:419) identifies the ikher snake as the Mozambican spitting cobra (*Naja mossambica*). However, this snake is not listed in El Din (2006) as a reptile of Egypt, nor is it mentioned in Chippaux (2006). Its range is from Tanzania southwards to Namibia and South Africa (O'Shea 2011:72). Therefore, as a distinctly southern African species, it is highly

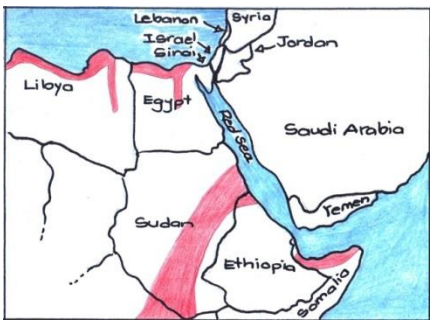
unlikely that it represents the ikher snake. It is a spitting cobra but its bite can cause severe local pain, swelling and often extensive tissue necrosis. Its venom is potentially cytotoxic, according to the World Health Organisation (2010:113). Marais (2014:64) reiterates these comments on the venom of the *Naja mossambica*, saying that it is predominantly cytotoxic and causes pain and swelling, as well as necrosis. There may be mild neurotoxic symptoms such as drowsiness, and death is rare.

One must consider the Egyptian Cobra (*Naja haje*) (see Figures 35 and 36 below) as a probability for the ikher snake. This cobra fits well with the description of the snake in the Papyrus, including the likely outcome of an envenomed bite. El Din (2006:279) describes *Naja haje* as a 'large, fairly slender snake'. It can be yellowish brown on its back, plain, or with a few scattered yellow scales.

Figure 35: *Naja haje*[121]

Figure 36: *Naja haje* hooding[122]

The Egyptian Cobras from the Mediterranean coastal plain tend to be darker than those from the Nile Valley (see distribution in Map 14 below).



Map 14: Distribution of *Naja haje*[123]

[121] Photograph of the Egyptian cobra (*Naja haje*) courtesy of Scott Shupe.
[122] Photograph of the Egyptian cobra (*Naja haje*) courtesy of David Hegner.

Shupe (2013:188) describes the colour of *Naja haje* as brown, tan or grey-brown. Its length is given as an average of 1.52 cm with a maximum length of 2.59 m. The venom is described as a postsynaptic neurotoxin and possibly also myotoxic, and in severe cases death of the victim may occur within a few hours (Shupe 2010:188). Postsynaptic neurotoxin causes a paralysis that can often be reversed through use of antivenom (White 2005:1056–1057).

Spawls & Branch (1995:69) describe the colour of the *Naja haje* as brown or greyish and say that it can be black or even dark grey. It averages 1.3–1.8 m in length with a maximum length of 2.5 m. The result of its neurotoxic bite can lead rapidly to death, say Spawls & Branch (1995:71), after a progressive flaccid paralysis and respiratory distress. Chippaux (2006:223–224) gives the average length as 1.5 m with a maximum length of 3 m, and remarks that an envenomed bite causes paralysis of the respiratory muscles, which leads to death through asphyxiation.

It is clear that the ikher is a highly dangerous snake. Its bite may lead to rapid death and it tends to be dark in colour and lengthy. A snake such as the Egyptian cobra (*Naja haje*) fits these criteria very well.

6.4.5 The Neki snake (*nkj*)

The neki (*nkj*) is described in Paragraph 25 of the *Brooklyn Papyrus* (see 5.2.12) as resembling the stem of a lotus. It has a length of 4½ cubits. One who is bitten by it becomes numb, and he is paralysed from head to toe, suffering a fever in addition for seven to eleven days, but apparently he can survive. One can imagine a lotus stem with the flower bud at the top, emerging from the water. It does bring to mind a hooding cobra.

Sauneron (1989:21) does not hesitate to suggest the black-necked spitting cobra (*Naja nigricollis*) (see Figure 37 below). Nunn (2002:185) says that Sauneron suggested *Naja pallida* for the snake in Paragraph 25, but Nunn equates *Naja pallida* with *Naja nigricollis*. However, these two snakes look different in terms of coloration, the *Naja pallida* being of a

[123] Map 14 created by Wendy Golding based on the map in Shupe (2013:158,188).

decidedly reddish shade and *Naja nigricollis* being predominantly black. Sauneron (1989:21, 154) in fact states that he believes the *neki* to be *Naja nigricollis*. It must be said, in Nunn's defence, that according to Spawls & Branch (1995:78) *Naja pallida* was once considered to be a sub-species of *Naja nigricolis* and perhaps that is why he referred to it as such, while meaning what we now know as *Naja pallida*. This is another example, like that of *Echis carinatus* and *Echis pyramidum*, of reclassification.

Figure 37: *Naja nigricollis*[124]

Spawls & Branch (1995:78) do not indicate the range of *Naja nigricolis* as extending into modern-day Egypt. The venom is cytotoxic and mildly neurotoxic (Spawls & Branch 1995:80). Mostly, the snake will spit rather than bite. *Naja nigricolis* is presented in Muller *et al* (2012:362) as a snake that has cytotoxic venom. The bite would be characterised by pain in the area of the bite wound and progressive swelling along with the typical symptoms of a venomous bite containing cytotoxin. One must remember that spitting cobras do not only spit. They bite too (Alexander & Marais 2007:158)!

Brix (2010:392) believes the neki snake could be the Montpellier snake (*Malpolon monspessulanus*). However, in my opinion, the reaction to an envenomed bite as described in the Papyrus does not fit this snake. A bite by *Malpolon monspessulanus* generally results in 'uncomplicated local wounds' such as puncture wounds and mild swelling (Weinstein *et al* 2011:207). Muller, (in World Health Organisation 2010:111), says that the bite of this snake causes local pain, swelling and lymphangitis and that the venom is possibly neurotoxic. It is mentioned by Weinstein *et al* (2011:207) that three cases were reported where there were

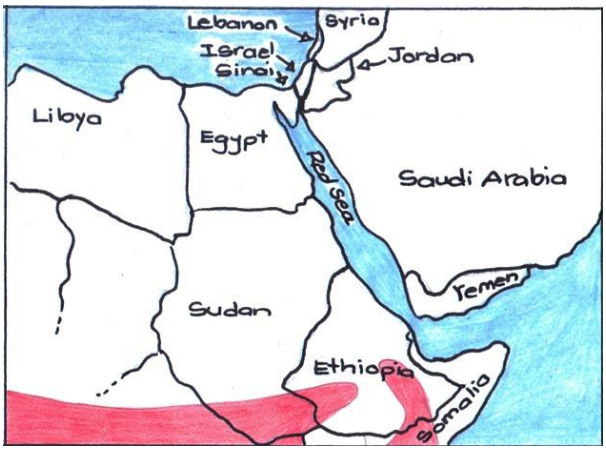
[124] Photograph of the Black-necked spitting cobra (*Naja nigricollis*) courtesy of Johan Marais.

systemic effects which included ptosis (drooping of the upper eyelids) and other cranial nerve palsies, peripheral neurotoxicity and drowsiness. However, it would seem this reaction is not the norm for a *Malpolon monspessulanus* bite. It is highly unlikely, therefore, that the *Malpolon monspessulanus* would qualify as the neki snake.

The snake that immediately springs to mind here for me is *Naja haje*. Its bite causes paralysis and it fits the size criteria. However, the bite of the neki snake is survivable, and it causes a numbness – which could be due to a mild neurotoxin rather than a strong one causing paralysis, to my mind.

Perhaps Sauneron's (1989:21) suggestion of *Naja nigricollis* warrants a more in-depth look. The description should fit a snake that is lengthy (4.5 cubits = approximately 2.36 m), whose venom contains neurotoxins (but is not predominantly neurotoxic), and can cause a fever. The bite needs to be survivable. In Marais (2014:58) one reads that in Central Africa *Naja nigricollis* may measure up to 2.7 m long. The venom is predominantly cytotoxic, causing pain, swelling and necrosis. Neurotoxic symptoms have been recorded which include sweating, ptosis and difficulty in respiration (Marais 2014:59).

Spawls & Branch (1995:78–79) place *Naja nigricollis* in Central Africa, from west to east, cutting across the southern-most part of Sudan. It also appears in Somalia, Ethiopia, Kenya, Uganda and Tanzania, as well as Namibia and a small portion of South Africa. If the ancient Egyptians encountered this snake, it would have most likely been in Sudan or Ethiopia (see Map 15 below).



Map 15: Distribution of *Naja nigricollis*[125]

[125] Map 15 created by Wendy Golding based on the map in Shupe (2013:194).

The average length is given as 1.3–2 m, reaching a maximum of around 2.7 m. Spawls & Branch (1995:80) also mention the venom as being cytotoxic but that neurotoxic symptoms may occur. Corkill (1935:25) discusses the specimens of *Naja nigricollis* found in the various provinces of Sudan, pointing out that this snake seems to be found predominantly close to water, on cultivated lands near rivers and trees.

Chippaux (2006:225) presents *Naja nigricollis* as having an average length of 1.5 m and a maximum of 2.2 m. It has venom containing a neurotoxin that can lead to paralysis of the respiratory muscles and the venom is rich in cytotoxins. In O'Shea (2011:73) the venom is recorded as having a postsynaptic neurotoxin as well as cytotoxin. O'Shea (2011:73) gives the maximum length as 2–2.7 m. In Shupe (2013:194) the distribution matches that given by Spawls & Branch. The venom is described as postsynaptic neurotoxin with necrotoxins and cardiotoxins (Shupe 2013:194).

Lymphangitis (an inflammation of the lymphatic vessels)[126] caused by cytotoxins can result in a fever[127]. Together with the sweating caused by the neurotoxins, the bite victim would suffer from the fever described in the Papyrus. The victim is likely to experience paralysis to some degree or another. These symptoms could well describe a *Naja nigricollis* bite. Its length seems to meet the given criteria. My opinion concurs with that of Sauneron in aligning the neki snake with *Naja nigricollis.*

6.4.6 The Ar-ar snake (*ḥfꜣw ꜥrꜥr*)

In Paragraph 32 of the *Brooklyn Papyrus* is the ar-ar snake (*ḥfꜣw ꜥrꜥr*) (see 5.2.19). The verb *ꜥr* means to 'mount up' or 'ascend' (Faulkner 1986:45). This reminds one of the rising up action of a hooding cobra. The Papyrus describes a snake the colour of sand. The victim does not die. Strangely, the *Brooklyn Papyrus* tells us that the victim suffers in the limb opposite the one that carries the bite and there is pain. This patient is treated with emetics and various

[126] https://www.merriamwebster.com/medical/lymphangitis (accessed 15th December 2019).
[127] Fever is a symptom of lymphangitis. https://www.healthline.com/health/lymphangitis#causes (accessed 15th December 2019.

procedures, including application of the knife. The Papyrus does not say how the knife is used but one might suppose that there is necrotic tissue.

Sauneron (1989:157) believed the snake in Paragraph 32 to be the Egyptian cobra, *Naja haje*. Warrell (in Nunn 2002:186) does question this based on the fact that the Egyptian cobra bite can be fatal because the venom of the Egyptian cobra has a strong neurotoxin. Paralysis sets in and eventually leads to death due to paralysis of the respiratory muscles. The face can become paralysed, the upper eyelids droop (ptosis) and the victim exhibits confusion and also muscular spasms (Spawls & Branch 1995:71).

There are, however, other possibilities for the ar-ar snake that one should consider. The *Naja nubiae* (Nubian spitting cobra) (see Figures 38 and 39 below) is worth examining. The colour of *Naja nubiae* is described in El Din (2006:281) as being a brownish grey, and Chippaux (2006:228) describes the colour of the snake as uniform rusty brown with a large double collar. It has two darker broad bands on the nape and neck, and a dark line runs between the eyes and the upper lip. This dark line is visible in the photograph in Figure 38 below.

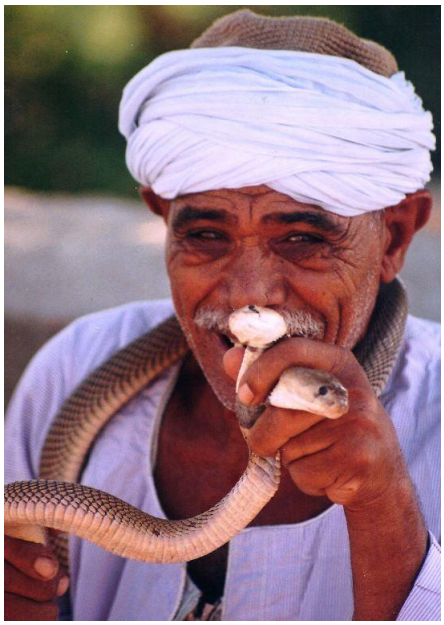


Figure 38: *Naja nubiae* and snake charmer[128]

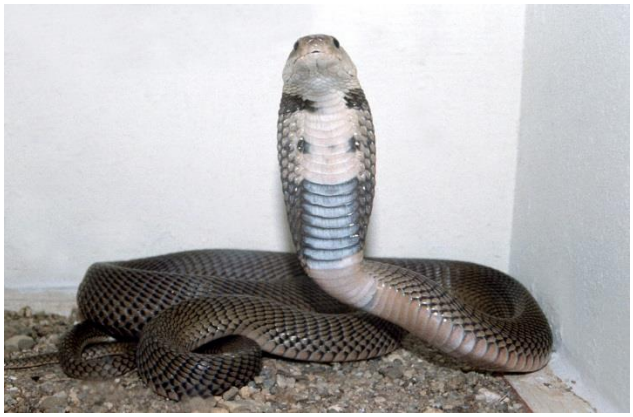


Figure 39: *Naja nubiae*[129]

The distribution of *Naja nubiae* is in the south of Egypt (see Map 16 below).

[128] Photograph of the snake charmer and two Nubian spitting cobras (*Naja nubiae*) by Wendy Golding. 2000. Aswan, Egypt.
[129] Photograph of the Nubian spitting cobra (*Naja nubiae*) courtesy of David Hegner.

Map 16: Distribution of *Naja nubiae*[130]

Another possibility for the ar-ar snake is the *Naja pallida* (red spitting cobra) of which Spawls & Branch (1995:77) explain that the species from Egypt tends to be an olive brown rather than the reddish or salmon colour found elsewhere.

However, judging from the description of the victim, it does not appear that paralysis takes place, so the snake would need to be one which lacks or has minimal neurotoxic elements in its venom. *Naja pallida* has venom that contains postsynaptic neurotoxin and a cytotoxin. Venom of *Naja nubiae* is more cytotoxic than neurotoxic (Shupe 2013:193). In my opinion, it is possible that the ar-ar snake is *Naja nubiae* rather than *Naja hahe* or *Naja pallida*, based on colour and lack of mention of paralysis.

One can conclude that several elapids are mentioned in the *Brooklyn Papyrus*. The next group of snakes to consider are the colubrids.

6.5 COLUBRIDS

The colubrid genus is the largest family of snakes, consisting of a variety of different types including (but not limited to) water snakes, tree snakes, egg-eaters, sand snakes, whip snakes, tiger snakes, and grass snakes. The vast majority are not venomous to humans and do not even have fangs. However a few are back-fanged and are therefore able to deliver venom from the poison glands. According to White (2005:1051), some fangless colubrids even produce a toxic oral secretion. They are, therefore, capable of causing envenomation in

[130] Map 16 created by Wendy Golding based on the map in Shupe (2013:15).

humans. Colubrids tend to have a head distinct from the neck (although not to the same extent as the viperids), and well-developed eyes (Alexander & Marais 2007:80).

6.5.1 The Sedeb snake (*sdb*)

Paragraph 36 of the *Brooklyn Papyrus* gives us the 'sedeb (*sdb*) (see 5.2.23) upon which one treads in the fields'. Part of the text is damaged so it is not possible to read the entire description. What text remains describes the snake as slender with a golden stomach. There is nothing bad that comes of its bite – no swelling and no bleeding.

Sauneron (1989:32) believes that it could be the African beauty snake (*Psammophis sibilans*) (see Figure 41 in 6.5.2). However, when one looks at the snake described next in Paragraph 37 of the *Brooklyn Papyrus* (see 6.5.2 below), it appears that the sedeb may in fact be the Schokari sand snake (*Psammophis schokari*) (see Figure 40), and the snake in Paragraph 37 is *Psammophis sibilans* rather than the other way round as Sauneron believes it to be. The descriptions of the snakes and the reaction to their bites seem to favour sedeb being *Psammophis schokari* and the unnamed snake in Paragraph 37, which is compared to the sedeb, being *Psammophis sibilans*.

In El Din (2006:265) we read that *Psammophis schokari* (see Figure 40 below) is a slender snake that may reach up to 148 cm in length. Its back is a light sandy-grey with dark stripes. Its underside is a pale or yellowish colour. Although it is found in a variety of habitats, it has a preference for areas with permanent vegetation (El Din 2006:266).

Figure 40: *Psammophis schokari*[131]

[131] Photograph of the Schokari sand snake (*Psammophis schokari*) courtesy of Daniel Jablonski.

Brix (2010:343) suggests the Large whip snake (*Coluber jugularis*)[132] for the sedeb I would argue against this based on two points. Firstly, the epithet for the sedeb is 'the snake upon which one treads in the fields'. This would imply that the sedeb is fairly commonly encountered in and around agricultural lands, which would be in areas with access to water, such as the Nile Valley and the Delta region. From El Din (2006:285) we learn that *Coluber jugularis* is quite rare today and is found in localised populations restricted to the higher hills of the North Sinai. It is, therefore, found in a rather different type of terrain to that of the sedeb. Admittedly, we do not know how common it may have been in pharaonic times. The second point is that the sedeb is described as being a slender snake with a golden stomach. In El Din (2006:285) we find a description of *Coluber jugularis* as being rather heavily built and with a reddish underside.

My inclination is to view *Psammophis schokari* as being the most likely candidate for the 'sedeb upon which one treads in the fields'.

6.5.2 Unnamed snake

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The missing text in the Papyrus means one cannot the name of the snake in Paragraph 37 (see 5.2.24) of the *Brooklyn Papyrus*. According to the Papyrus, the victim does not suffer any serious consequences from its bite but has sore limbs. It seems that the snake may be black with a pale stomach and may possibly have bands of colour stretching along the length of its body.

Sauneron interprets the Papyrus as saying that it is like the sedeb in Paragraph 20 of the *Brooklyn Papyrus* (see 6.3.2) in the bands of colour that stretch along its length. So there is colour overlaying the black and this colour stretches the length of the snake's back. The sedeb, according to my identification, has blotches and not bands. So perhaps the comparison means that the colour overlays the length of the snake, which one might think of as stripes, and not that the sedeb has bands. More than likely, though, this unnamed snake is being compared to the sedeb in Paragraph 36 and not the sedeb of Paragraph 20, which is one of the viperid group.

[132] The Large whip snake is also known as *Dolichophis jugularis* (El Din 2006:234).

As stated above, Sauneron (1989:32 & 34) feels that this is *Psammophis schokari* and that the snake in Paragraph 36 was *Psammophis sibilans* (see Figure 41 below).

Figure 41: *Psammophis sibilans*[133]

In my opinion the identifications should be the other way around owing to the colouring and victims' reaction to the bites. El Din (2006:267) describes *Psammophis sibilans* as having longitudinal stripes in a greyish-brown, edged with black. Narrower yellowish lines run along the sides, and a very thin yellow line along the centre of the dorsum. In fact, looking at the picture in El Din (2006:104), it appears that the basic background colour is black, upon which the other colours fall. The ventral side is described as yellow. The bite of this snake, according to the World Health Organisation (2010: 111) may cause mild swelling, local pain and lymphangitis, as well as headache, nausea, bleeding and skin discolouration (White 2005:1053).

Psammophis sibilans seems to be found in areas where there is flowing water such as rivers or irrigation canals. In modern-day Egypt it can be found in and around fallow land, cultivated fields, canal banks and near wetlands and semi-desert (El Din 2006:267). This unnamed snake may well be *Psammophis sibilans*.

6.6 ATRACTASPIDS

Atractaspids are burrowing snakes and endemic to Africa with the exception of one species found in the Arabian Peninsula, Israel and Jordan (Alexander & Marais 2007:66). They tend

[133] Photograph of the African beauty snake (*Psammophis sibilans*) courtesy of Professor Adel Ibrahim.

to have small scales and small eyes. The venom of some Atractaspids may be fatal and from White (2005:1042) we learn that their venom contains a sarafatoxin.

6.6.1 The Djou-qed snake (*ḏw-qd*)

Paragraph 19 of the *Brooklyn Papyrus* tells of a small snake called djou-qed (*ḏw-qd*) (see 5.2.6), as small as a lizard (Sauneron 1989:14). One who has been bitten by this snake dies quickly, and there is swelling around the bite wound.

Nunn (2000:185) reads the name as *qd-ḏw*, however this is an example of graphic transposition in the text. In Faulkner (1986:282) one finds the phrase *ḏw qd r* meaning 'ill-disposed toward'. Perhaps this snake can be considered as ill-tempered. Nevertheless, there is very little information here to attempt a decent possible identity.

The only snake known in Egypt that is really small is the Cairo Blind Snake (*Leptotyphlops cairi*) which measures 15–20 cm in length (Sauneron 1989:151). This snake is non-venomous so it cannot be a contender for the djou-qed snake. So the question is: what is small and lethal and is similar in size to a lizard? Now, one must consider that the lizard being referred to could be a fairly large one, and the lizards of the *Uromastyx* genus tend to be quite large. The largest is the Egyptian dabb lizard (*Uromastyx aegyptica*) measuring 66,20 cm including the tail (El Din 2006:132). *Echis pyramidum* and *Echis coloratus* both average 30–60 cm in length. Therefore, they would be comparable in size to the *Uromastyx* lizards. Brix (2010:plate III) does in fact suggest *Echis pyramidum* for the djou-qed snake. Although it is better suited to the description of the sedeb or fy, it is not an impossibility here.

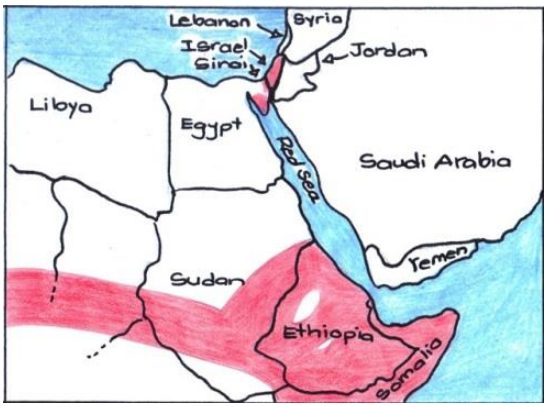
Another possibility for the djou-qed is the Palestinian burrowing asp (*Atractaspis engaddensis*) (see Figure 42 below) because the Papyrus notes that one who has been bitten dies quickly. The World Health Organisation (2010:50) informs us that most fatal cases die within 45 minutes of the bite.

The *Atractaspis engaddensis* is one of three of the seventeen of the *Actractaspis* species that have potentially lethal venom. The bite causes swelling, and can result in dyspnoea and

respiratory failure (World Health Organisation 2010:110). Bites from the larger *Atractaspis* species have been known to result in deaths. Refer to 6.4.3 above regarding the reputation of *Atractaspis engaddensis* .

Figure 42: *Atractaspis engaddensis*[134]

The *Atractaspis* snakes average 30–70 cm in length (World Health Organisation 2010:13; Spawls & Branch 1995:28). This would fit with the reference to the snake being the size of a lizard, if one is looking at the larger lizard species for comparison. *Uromastyx aegyptica* is in fact found in the same region as *Atractaspis engaddensis* and is very prevalent, so it would be the obvious choice of reptile against which to compare the djou-qed for size. *Atractaspis engaddensis* is found in desert regions in Egypt (Muller in World Health Organisation 2010:110; Joger 1984:10). El Din (2006:285) places this snake in the Sinai region of Egypt (see Map 17 below). Elsewhere it is found in Israel and Jordan.



Map 17: Distribution of *Atractaspeis engaddensis*[135]

[134] Photograph of the Palestinian burrowing asp (*Atractaspis engaddensis*) courtesy of Daniel Jablonski.
[135] Map 15 created by Wendy Golding based on the map in Shupe (2013:205).

Based on size and the reaction of the victim to the bite, one should consider that *Atractaspis engaddensis* would be a good possibility for the djou-qed.

6.7 UNIDENTIFIED SNAKES

Some of the snakes in the *Brooklyn Papyrus* could not be identified with any certainty, either by Sauneron or by Warrell (in Nunn 2002). The information provided is insufficient to make an attempt at a definite identification. Rather, they are mere suggestions to consider. I feel that I have managed to narrow down some of the possibilities and at least place the snakes into their correct grouping. We are, however, left with the following snake.

6.7.1 unnamed snake

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The Egyptian name of the snake in Paragraph 34 of the *Brooklyn Papyrus* is unknown because the portion of text bearing its name is damaged (see 5.2.21). The snake is described as being entirely pale and with a narrow neck. One does not die of its bite but the limbs are wracked with spasms. The bite victim, according to the Papyrus, can be saved.

Sauneron (1989:31) thinks that there is too little information to attempt identification. However, he then suggests (1989:165) the Moila snake / Hooded malpolon (*Malpolon moilensis*) (see Figure 43 below) as a probable, rather than a possible identification. It does fit the colour description, being sandy-coloured along its back with a white or cream ventral surface (El Din 2006:248–249). The bite of the *Malpolon moilensis* can possibly cause local pain, mild swelling and lymphangitis (World Health Organisation 2010:111), as well as skin discolouration and bleeding (White 2005:1053).

I considered that this snake might be *Naja haje* based on the description in the Papyrus of the limbs being wracked with spasms. This symptom of spasms and muscle twitches is described in Spawls & Branch (1995:71). I am not entirely convinced, though, because the envenomed bite of *Naja haje* can be lethal. Also, this snake is described as being pale. The colour of *Naja haje* in World Health Organisation (2010:10) is described as being extremely variable, including grey with a pale ventral surface. I did consider *Naja nubiae* because of its colour,

but it would seem that the muscle twitches described for *Naja haje* bite do not apply to *Naja nubiae* bite. This makes sense, as it has a different type of venom which produces a local tissue 'necrosis without neurotoxicity' (World Health Organisation 2010:51).

Figure 43: *Malpolon moilensis*[136]

It is possible that this snake is *Malpolon moilensis* but there really is not enough information to be certain.

6.8 CHAMELEON

After discussing 37 snakes and the effects of their bites, the *Brooklyn Papyrus* suddenly presents us with the chameleon.

6.8.1 Kar (*kꜣr*)

Paragraph 38 (see 5.2.25) of the *Brooklyn Papyrus* gives us kar (*kꜣr*), the chameleon. There are two species of chameleon found in modern-day Egypt: the African chameleon (*Chamaeleo africanus*) (El Din 2006:140) and the Common chameleon (*Chamaeleo chamaeleon*) (El Din 2006:142). Chameleons are not venomous and it remains a mystery as to why the chameleon is presented in the *Brooklyn Papyrus*.

It would appear that not much is known about the chameleon in ancient Egyptian thought, despite the curiousness of the creature. Descriptions and inscriptions upon monuments are

[136] Photograph of the Moila snake (*Malpolon moilensis*) courtesy of Daniel Jablonski

hard to come by. However, in 1936 Keimer published three examples that he had come across: an Old Kingdom bas-relief, a New Kingdom ostracon, and a small sculpture (Sauneron 1972:161). The only clue we have as to how chameleons were perceived of in ancient Egyptian thought lies in this small passage in the *Brooklyn Papyrus* in Paragraph 38. People must have had a negative connotation with it for whatever reason because we are informed that the 'bite' victim can be saved and that an exorcism could be performed. Sauneron (1972:162) does mention that in African cultures the chameleon carries a reputation of misfortune.

In African mythology the chameleon tends to be linked to misfortune and death. Numerous African myths on the origin of death carry a similar theme: when God created humankind, he dispatched the chameleon with a message to be delivered to the people. The message was the following: when people die, it is not forever. Like the moon that waxes and wanes, they will also come back to life (Knappert 1990:53). However, it was a very long journey to earth and the chameleon moves very slowly, so God sent another, faster, animal with the message so that it would be delivered more quickly. He gave the message to the hare, which muddled the message up and told the people that God said that they will all die forever. Eventually the chameleon arrived with the correct message, but it is believed that God's initial message cannot be changed, even if it is the wrong message (Knappert 1990:53).

There are other versions of this story but the theme is the same. In the Botswanan version the gods sent a lizard to deliver the message instead of a hare (Knappert 1990:42), and in the Wute version from Cameroun, a snake overhears God's message and decides to trick the people by delivering the incorrect version of the message (Knappert 1990:261). In the Zulu version a lizard is sent (Parrinder 1982:59).

Another myth providing an explanation for the origin of death, and which involves the chameleon, is told by the Luyia (Luhya) people of Kenya (Parrinder 1982:57). The story goes that one evening, the son of the ancestor of the Luyia, named Maina, was eating his evening meal, when along came the chameleon. The chameleon asked for some food, which Maina should have given him, as politeness dictates. However, Maina refused and he drove the chameleon away in a hostile manner. The chameleon placed a curse on Maina and told him that his people would die (Parrinder 1982:57).

Perhaps similar myths existed in ancient Egypt that linked the chameleon with death and misfortune, but at this point we just do not know.

6.9 CONCLUSION

Several important points have arisen purely through the exercise of attempting to identify the snake species mentioned in the *Brooklyn Papyrus*. To me these points seem more valuable than correct identification of the snakes themselves.

6.9.1 The Priests of Serqet as experts

The degree of evidence contained in the descriptions of the various snakes in the *Brooklyn Papyrus* strongly suggest that the Priests (Controllers) of Serqet were skilled in snake observation and identification. Snakes could be named after a specific characteristic. Note was made of what a bite looked like, and they understood that different snakes caused different reactions in the bite victim.

6.9.2 Encountering snakes outside of Egypt

While considering probable and possible identities for the snakes in the *Brooklyn Papyrus*, it became apparent that some of the snakes considered are not found in Egypt today, and some of these may not even have been there in ancient times. Either they migrated southwards following changing climatic conditions, or were encountered on travels eastwards through the Sinai, or southwards through ancient Nubia and Sudan towards the south-east of Africa.

6.9.3 Priests of Serqet on expeditions

If some of these probable and possible identifications of snake species found outside of modern-day Egypt are correct, then it would mean that they were encountered on expeditions such as those to facilitate movement of troops, mining, trade and occupation. The inclusion of these species in the *Brooklyn Papyrus* indicates the likelihood that the Priests (Controllers) of Serqet travelled, with their snake identification and treatment manuals, on these expeditions.

6.9.4 Identification of the snakes

It is not possible to identify precisely the snakes mentioned in the *Brooklyn Papyrus*. Yet by considering certain factors, such as external description (colour, size) and effects of an envenomed bite on a victim, one can come up with probable and possible identifications.

These are shown in the tables below. The tables are arranged in snake groups according to my opinion of the identities of the snakes, starting with the viperids, followed by the elapids, colubrids, atractaspids, a snake of uncertain species, and finally, a chameleon. The first column gives the number of the paragraph in the *Brooklyn Papyrus* and the second column gives the Egyptian name where known. The third column provides my probable and possible identifications of the snakes of each paragraph. The fourth, fifth, sixth and seventh columns list the identifications of Sauneron (1989), Warrell (in Nunn 2002) and Nunn (2002), Brix (2010) and Leitz (in Aufrère 2012) respectively. One must bear in mind, of course, that Sauneron made his identifications prior to 1976, which was the year in which he died, and some snakes (the *Echis* species in particular) have since been reclassified. The scientific and not the common names of the snakes are given because the scientific names are mostly constant whereas the common names can vary. Both names were referred to in conjunction with each other on the initial mention of each snake during the course of this chapter.

Table 1: Possible identity of viperids in the Brooklyn Papyrus

§	Egyptian name	Golding	Sauneron	Warrell and Nunn	Brix	Leitz
18	*kɜ n ʾm*	*Cerastes gasperetti*, *Cerastes cerastes* (hornless variant)	*Pseudocerastes persicus*	*Pseudocerastes persicus* or hornless *Cerastes*	*Pseudocerastes persicus*	
20	*sdb*	*Echis pyramidum*	*Echis coloratus*	*Eryx jaculus*	*Chamaetortus aulicis (Dipsadoboa aulica)*	*Psammophis schokari*, *Psammophis sibilans*[137]
21	*nbd*	*Atheris hispida*	*Natrix natrix*		*Atheris hispida*	
22	*ṯj-ʿm*	*Pseudocerastes persicus fieldi*	*Pseudocerastes persicus*		*Cerastes vipera*	
23	*ḥnp*	*Echis coloratus*	*Telescopus obtusus*	*Cerastes*	*Macrovipera deserti*	*Telescopus dhara*, *Telescopus fallax hoogstraali*
24	*ḥnp dšrt*	*Macrovipera lebitina*	elapid of some sort		*Macrovipera lebitina*	
26	*fy*	*Echis pyramidum* (with distinctive head marking)	*Echis pyramidum*	*Echis pyramidum*	*Atheris nitschei*	*Vipera (Daboia) palestinae*
27	*fy ntf ṯɜw*	*Bitis arientans*	*Echis carinatus*	*Bitis arietans*	*Echis coloratus*	*Echis coloratus*
28	*fy ḫr dbwj*	*Cerastes cerastes*, *Cerastes gasperetti* (horned variant)	*Cerastes cerastes*	*Cerastes cerastes*	*Cerates cerastes*	*Cerastes cerastes*
29	*fy šrj*	*Cerastes vipera*	*Cerastes vipera*	*Cerastes vipera*, or small *Cerastes cerastes*	*Vipera latastei*	*Cerastes vipera*
30	*fy*	*Causus resimus*	*Echis pyramidum*		*Causus resimus*	

[137] It is possible that Leitz has confused this *sedeb* with the *sedebou* of Paragraph 36.

§	Egyptian name	Golding	Sauneron	Warrell and Nunn	Brix	Leitz
31	*fy ṯzw*	*Cerastes vipera* of the coastal region	elapid of some sort		*Psammophis tangicus*	*Platyceps rhodorachis*
33	*ḥf ntf fy ṯzw*	*Pseudocerastes persicus fieldi*	*Echis* species	*Echis* species	*Bitis arietans*	*Pseudocerastes persicus fieldi*
35	*r-bḏzḏz*	*Pseudocerastes persicus fieldi* (dark variant)	elapid of some sort	*Walterinnesia aegyptica*	non-identifiable	

Table 2: Possible identity of elapids in the Brooklyn Papyrus

§	Egyptian name	Golding	Sauneron	Warrell and Nunn	Brix	Leitz
14	name missing	*Naja nubiae Naja pallida*	*Naja pallida*		*Naja haje*	
15	*ḫfzw n ʿz ʿzpp*	*Naja pallida*	*Oligodon melancephalus, Telescopus obtusus, Zamenis diadema*	*Coluber rhodorhachis, Malpolon moilensis*	*Naja pallida*	*Naja haje*
16	*gznj*	*Walterinnesia aegyptica, Atractaspis microlepidota*	*Walterinnesia aegyptica*	*Walterinnesia aegyptica, Atractaspis microlepidota*	*Naja nigricollis*	*Walterinnesia aegyptica*
17	*jḫr*	*Naja haje*	*Zamenis*		*Naja mossambica*	*Naja pallida* (*Naja mossambica pallida*)
25	*nkj*	*Naja nigricollis*	*Naja nigricollis*		*Malpolon monspessulanus*	*Malpolon monspessulanus*
32	*ʿrʿr*	*Naja nubiae*	*Naja haje*		*Malpolon moilensis*	*Malpolon moilensis*

Table 3: Possible identity of colubrids in the Brooklyn Papyrus

§	Egyptian name	Golding	Sauneron	Warrell and Nunn	Brix	Leitz
36	*sdbw*	*Psammophis schokari*	*Psammophis sibilans*		*Coluber jugularis*	*Eryx jaculus*
37	name missing	*Psammophis silbilans*	*Psammophis schokari*		*Psammophis biseriatus*	

Table 4: Possible identity of atractaspids in the Brooklyn Papyrus

§	Egyptian name	Golding	Sauneron	Warrell and Nunn	Brix	Leitz
19	*ḏw-qd*	*Atractaspis engaddensis*			*Echis pyramidum*	*Echis pyramidum*

Table 5: Possible identity of unidentified snakes in the Brooklyn Papyrus

§	Egyptian name	Golding	Sauneron	Warrell and Nunn	Brix	Leitz
34	name missing	*Naja haje*	*Malpolon moilensis*		*Telescopus tripolitanus*	

The above tables show clearly the differences in opinion and also the areas where there are agreements. It would appear that with some snakes the conclusion is fairly obvious, while with others we can only speculate and will most likely never arrive at the true answer. The table does suggest that the Priests (Controllers) of Serqet were relied upon to treat envenomed bites from a number of seriously venomous snakes, which clearly had the potential to be lethal, and without our modern-day treatment protocols and antivenom, no doubt this may have often been the case.

6.9.5 Organisation of snakes into groups by the Priests of Serqet

What is very apparent, looking at the tables according to my groupings, is that the Priests of Serqet appear to have had a system in place as far as the order of snakes in the *Brooklyn Papyrus* is concerned. This fact was not apparent to me until I drew up the tables. In Table 1 (viperids) one will notice the almost consecutive numbering of the paragraphs of the *Brooklyn Papyrus*: 18, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 31, 33 and 35. Only Paragraphs 19, 25, 32 and 34 are not in the sequence. In Table 2 (elapids) the following paragraphs are in sequence: 14, 15, 16 and 17. Paragraphs 25 and 32 which are missing from the Table 1 are found here. Table 3 (colubrids) contains the sequential Paragraphs 36 and 37.

The priests have grouped the snakes according to type and this suggests that they were aware of the difference between vipers and elapids, at the very least. To my mind this can hardly be coincidental. I am convinced that the Papyrus was deliberately organised this way. One wonders which snakes were contained in the missing first 13 paragraphs and if this grouping trend occurred there too.

Refer to Addendum 2 for a table (see Table 19) comparing the order of the snakes according to groups discussed here, in relation to a table in Aufrère (2012:242).

6.9.6 Relationship between the snake's name and its characteristics

In some instances there is an obvious link between the name of the snake and a characteristic that it possesses. This characteristic may be linked to the description of the snake or to its temperament. Table 6 (below) summarises these links.

Table 6: The relationship between a snake's name and its description

§	Name of snake	Link
18	*kꜣ n ꜥm*	*ꜥm* refers to something that is foreign. This is a snake that comes from outside of Egypt.
19	*ḏw-qd*	*ḏw-qd r* means 'ill-disposed towards'. This is likely to be a reference to the nature of the snake.
20	*sdbw*	*sdb* means 'evil' or 'ill-tempered' – an allusion to the nasty nature of this viper.
21	*nbd*	*nbd* means ' to plait' or 'wrap up'. The connotation is with doing one's hair. The keeled scales of this snake end in spikes which give the snake a shaggy or hairy appearance.
22	*ṯj-ꜥm*	*ꜥm* in the name refers to something foreign. This is another snake from outside of Egypt.
24	*ḥnp dšrt*	*dšrt* refers to the red land (desert). This is a snake that lives in a desert habitat.
26	*fy*	*fy* indicates that this snake is a viper
27	*fy ntf ṯꜣw*	The name of this snake clearly tells us that it is a viper which blows air audibly – a puff adder.
28	*fy ḫr dbwj*	The name of this snake translates as 'the viper which has two horns'. This is a horned viper.
29	*fy šrj*	*šrj* means 'little'. This is a little viper.
30	*fy*	The name of this snakes indicates that it is a viper
32	*ꜥrꜥr*	*ꜥr* means to 'rise up'. This suggests a snake that rises up, such as a cobra.
33	*ḫf ntf ṯꜣw*	This is a snake that makes a sound like air in a forge. It rasps its keeled scales together to produce a characteristic sound.

It is quite evident from this chapter and Chapter Five that the ancient Egyptians were skilled observers or nature. This can be deduced from the descriptions of snakes and the effects of their bites, as well as the apparent organisation of the snakes into groups. It is clear from the possible identifications of the snakes in this chapter that the Priests of Serqet travelled outside of Egypt, accompanying expeditions. It is quite possible, from the descriptions in the *Brooklyn Papyrus*, to attempt to identify the species of snakes that were encountered by the ancient Egyptians and to arrive at plausible suggestions for their identifications.

CHAPTER SEVEN

TEXT OF THE SECOND PART OF THE *BROOKLYN PAPYRUS*: RECIPES AND TREATMENTS

7.1 INTRODUCTION

7.1.1 Content of the second part of the *Brooklyn Papyrus*

The second part of the *Brooklyn Papyrus* contains the procedures and recipes for snakebite treatments. The treatments commence with Paragraph 39 and culminate with Paragraph 100. This translation follows Sauneron's division of the paragraphs into 'a', 'b', 'c' and so forth (based on the divisions in the hieratic text), wherever a treatment has alternatives. For example, the treatment advised in Paragraph 50 of the *Brooklyn Papyrus* has an alternative treatment. The treatments are therefore labelled Paragraph 50a and 50b. Some paragraphs have more than one alternative treatment.

Once again, reference to the 'first part' or 'second part' of the Papyrus in this thesis does not mean the two parts 47.218.48 and 47.218.85 (as a result of being torn in two in antiquity), but rather a division into two parts based on subject matter, namely the identification of the snakes and the effects of their bites in part one, and treatment prescriptions in part two.

7.1.2 Methodology

Each paragraph of the treatment section of the *Brooklyn Papyrus* begins with the Egyptian hieroglyphics which are Sauneron's transliteration from the hieratic text. My transliteration into Latin script is provided from the hieroglyphics, followed by an English translation. There are numbers in the English translation to direct the reader to the notes that follow. Any footnotes are indicated by numbers in the English notes to avoid confusion with the numbers in the English translation. The transliteration into the ancient Egyptian language is indicated by the use of the Trlit_CG Times font, while foreign words in other languages are indicated by normal italic font.

Occasionally one finds the extra 'curl w' () in an Egyptian word, and also 't' appearing after a determinative. These are often found in Late Egyptian spellings and have been left out in this transliteration as they have no bearing on the translation of each word concerned.

7.1.2.1 References to the Ebers Papyrus

Any references to paragraphs in the *Ebers Papyrus* follow the paragraph numbers used in Lalanne & Métra (2017). This recent translation by Lalanne & Métra is a good reference source for two reasons. Firstly, it is very recent and is likely to have up-to-date translations for the various ingredients used in treatments; and, secondly, the *Ebers Papyrus* is an extensive treatment manual which, according to Estes (2004:97), was put together from several sources.

7.1.3 Symbols used in the text and translation

The symbols used in the transliteration and translation follow Allen (2005a:30) and Alexander *et al* (2006:30).

7.1.3.1 Square brackets [ ]

Square brackets in the hieroglyphic text and translation are used to indicate missing, illegible or damaged text in the hieroglyphic text. If it is possible to reconstruct the missing text the translated words will remain in the square brackets. If it is not possible to reconstruct missing text, this is indicated by use of ellipses within the brackets, for example […]. In the case of reconstructed text an explanation will be given.

7.1.3.2 Parentheses ( )

Rounded brackets, or parentheses, are used to indicate words or parts of words that have been added in the course of the translation in order to add clarity. Where they are used in the transliteration they indicate consonants omitted by the scribe or the weak letters such as *ɜ, j* or *w*.

7.1.3.3 Half brackets ⌜ ⌝

Half brackets in the hieroglyphic text indicate that the text is legible despite being damaged. In the transliteration they are used to indicate restoration and / or likely transliterations of damaged text. They may also be used to indicate a possible error on the part of the scribe

(Allen 2005a:30). In the translation they are used to show translation of the possible transliteration.

7.1.3.4 Braces { }

Deleted text is indicated by the use of braces.

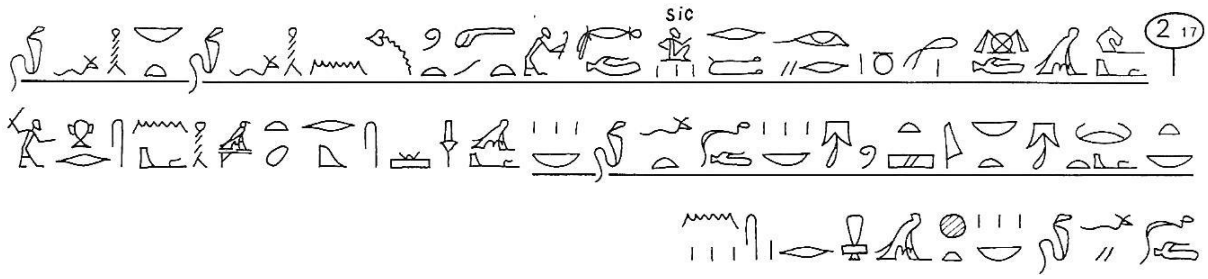
7.1.3.5 Pointed brackets ‹›

Pointed brackets are used to indicate a correction made in the translation where it seems an error or omission was made by the scribe in the original text.

7.2 TEXT OF THE SECOND PART: RECIPES AND TREATMENTS

7.2.1 Paragraph 39

Brooklyn Papyrus, page 2, line 17



ḥɜt-ʿ m dmḏt n(*t*) *jr*(*t*) *rrt* [*r*] *šd mtwt n ḫf*(*ɜw*) *nbt ḫf*(*ɜt*) *nbt, wḥʿt nbt, jtš nb, ḏdft nb*(*t*), *m-ʿ sḫm srqt, ḥnʿ sḫr*(*j*) *ḏdf*(*t*) *nb ḫtm r sn*.

The beginning of the collection[1] of the composition (lit. making) of remedies[2] for getting rid of the venom of every male snake (and) of every female snake[3], of every scorpion, of every solfugid[4], (and) of every worm[5], and this collection[6] (lit. which) is at hand for (lit. under the hand of) the Controller of Serqet (Serqet priest)[7], and it also serves to remove every snake and worm and to seal their mouths[8].

7.2.1.1 Note 1

Sauneron (1989:53) points out that the sign  (S23 in Gardiner 1957:506) used here in Paragraph 39 seems closer in appearance to a sign resembling ⟌, a sign which is found in

Paragraph 16 (see 5.2.6) in the word  (*šd* – recite). In the preceding line, in Paragraph 38 (see 5.2.25) of the *Brooklyn Papyrus*, the sign  appears clearly in the word  (*dmḏt*). If one understands Sauneron correctly, in effect what the scribe wrote in the hieratic text was a word that looked like  which, says Sauneron (1989:53) is not a known word unless it is a mistake in the writing of the word *sšd*. This word *sšd* has possible meanings of 'bandage' (Faulkner 1986:249; Hannig 2006:834), *leine* (line, chord) (Hannig 2006:249); or *bandeau serre-tête* (headband) (Sauneron 198:53), and this would not make sense in the context of Paragraph 39.

If one compares this line  (presuming that this is what the scribe originally wrote instead of ) to Ebers 4 (2a[7]) in Lalanne & Métra (2017:13), namely  , which they transliterate as *ḥɜt-ʿ m dmdt*, then Sauneron's suspicion of a mistake by the scribe is highly likely to be correct.

7.2.1.2 Note 2

The line written by the scribe is *dmḏt n jr*(*t*) *rmṯ šd mtwt*, which, as Sauneron (1989:54) points out, although not entirely absurd in meaning, does not appear to be grammatically correct. Sauneron (1989:54) suspects that the word  should probably be  (see 7.2.2.1 for the spelling of the word *pḫrt* in the *Brooklyn Papyrus*), and that the correct reading should be *dmḏt n*(*t*) *jrt pḫrt* [*r*] *šd mtwt*. Once again, an analogy between what appears here in *the Brooklyn Papyrus* and Ebers 4 (2a[7]) () shows Sauneron is most likely correct.

7.2.1.3 Note 3

Refer to 5.2.14.3 for Paragraph 27 regarding the use of *nb* and *nbt*.

7.2.1.4 Note 4

It is difficult to find an exact meaning for the word  (*jtš*). Sauneron (1989:54) says there is a creature called *jntš* on the *Metternich Stele*. In his translation of the word *jtš* in the *Brooklyn Papyrus*, Sauneron (1989:54) gives the meaning as 'tarantula'. Hannig (2006:91) provides *stechendes, giftiges Tier* (a biting or stinging poisonous insect), and then gives

tarantel, *spinne* (tarantula, spider) as uncertain meanings. Erman & Grapow (vol. 1, 1926:102) gives us a meaning for *jntš* as *ein böses tier (neben schlange und scorpion)* (a malicious creature [aside from a snake or scorpion]). One must also consider that 'tarantula' or 'spider' does not seem to fit the meaning of *jtš* because Serqet is a snake and scorpion goddess. Spiders are not associated with her and it is likely that there is another possibility for the word *jtš*.

Sauneron (1989:54) says that Gardiner came across the word *jntš* in the *Chester Beatty Papyrus* in the following line 'the venom of the sting from an *jntš* or a scorpion'. This would suggest that the *jntš* is neither a snake nor a scorpion, and so Gardiner (Sauneron 1989:54) considered other possibilities for the *jntš* such as a centipede/millipede or a tarantula; but a centipede is called *spꜣ* (Faulkner 196:222) so it cannot be that.

Next, according to Sauneron (1989:54), the medical texts of the Arab tradition list among creatures with dangerous bites and stings: 'the scorpion, the *djerrarah* insect, the widows [spiders], bees, snakes, rabid dogs'. The *djerrarah* insect is described as a scorpion which drags its tail on the ground. Théodoridès (in Freudenthal & Kottek 2003:63) talks of Dr Shulov who believes the *djerrarah* to be the equivalent of the Hebrew *haarazim* which is a solfugid (see Figures 44 and 45 below).

Figure 44: Solfugid[138]

Figure 45: Head of a solfugid[139]

A solfugid can be a sizeable arachnid, perhaps better known by the names of camel spider, sun spider, or wind scorpion[140]. The creature strikes one as a cross between a scorpion and a

[138] Photograph of a solfugid courtesy of Jonathan Leeming (www.JonathanLeeming.com).
[139] Photograph of a solfugid courtesy of Jonathan Leeming (www.JonathanLeeming.com).
[140] https://en.wikipedia.org/wiki/solifugae (accessed 24th March 2017).

spider and yet it is neither. It is more closely related to the scorpion and can reach sizes of 12 to 15 cm[141]. Solfugids tend to inhabit arid regions with hot, dry conditions, but they can also be found in grasslands and forested areas[142]. The diet of the solfugid may include snakes, rodents and lizards, and they are nocturnal hunters[143]. Although a solfugid is not venomous to human beings, its bite can be painful and very nasty and may result in a large wound. Treatment consists of antibiotics, steroids and pain medication, along with sterile wound dressings[144]. The damage to flesh is most likely caused by the digestive fluids that are used to liquefy the flesh of the victim in order to make it easier for the solfugid to ingest its meal[145].

Considering this information regarding the damage that may be caused by the solfugid's bite and its similarity to a scorpion one should view this arachnid as a very likely candidate for the *jtš / jntš*. The meaning of *jtš / jntš* as 'solfugid' is applied in this current translation.

7.2.1.5 Note 5

The word *ḏdft* appears to be a generic term that encompasses snakes and worms / intestinal worms (Faulkner 1986:326; Nunn 2002:219).

7.2.1.6 Note 6

It is important to note, as Aufrère (2012:244) does, that although this second part of the papyrus says that it also treats the stings or scorpions and the bites of spiders and solfugids, it does not. This suggests that there may be a possible missing part to this papyrus or a separate document that deals with these other creatures.

7.2.1.7 Note 7

The *kherep Serqet* (one who has power over Serqet / Controller of Serqet) was a title held by the doctors (*swnw*) and lector priests[146] (*ḫry-ḥb*) who treated snakebite and scorpion stings (Pinch 2006:55). See 2.3.3 for a more detailed discussion on the *kherep Serqet.*

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[141] https://en.wikipedia.org/wiki/solifugae (accessed 24th March 2017)
[142] http://www.spidersworld.com (accessed 24th March 2017).
[143] http://www.spidersworld.com (accessed 24th March 2017).
[144] http://www.spidersworld.com (accessed 24th March 2017).
[145] http://www.animals.nationalgeographic.com/animals/bugs/egyptian-giant-solpugid/ (accessed 24th March 2017).
[146] Lector priests were in charge of the magical rituals performed in the temples, and also the magic rituals performed for the king (Pinch 2006:52), as well as officiating at funerals and it is probable that they performed magic rituals for lay people (Pinch 2006:53).

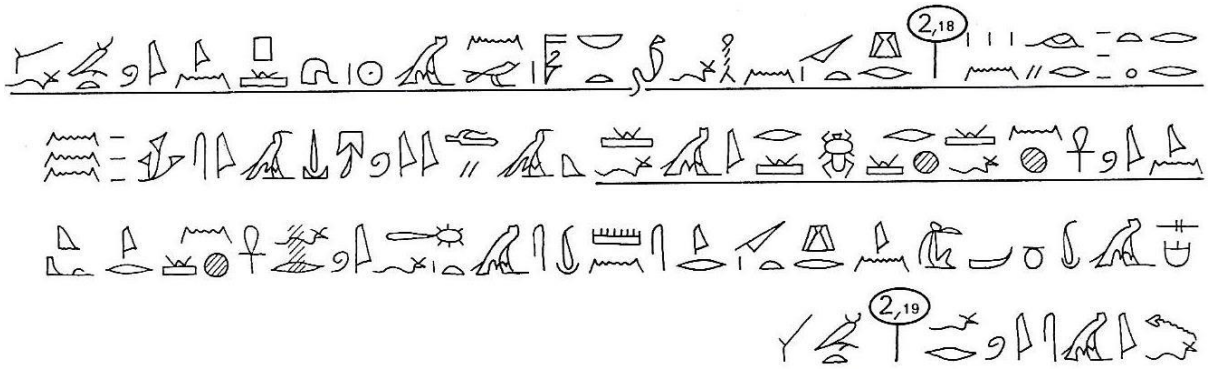
The meaning of *m-ᶜ* (under the hand) probably refers to the collection of treatments being close at hand for the Controller of Serqet. Sauneron (1989:55) compares the line *m-ᶜ sḫm srqt* to a similar line in Paragraph 42a: *jr ḥḏw wn.f m-ᶜ sḫm srqt* (regarding the onion, it is under the hand of the Controller of Serqet), in other words the onion, which is frequently used in the *Brooklyn Papyrus* treatments, is always at hand.

7.2.1.8 Note 8

Pinch (2006:84) tells us about an ancient Egyptian temple rite called *The Book of Sealing the Mouths of the Enemy*. There were also spells that were intended to seal the mouths of dangerous creatures such as snakes to prevent them from biting.

7.2.2 Paragraph 40

Brooklyn Papyrus, page 2, lines 17 to 19



rrt jrrt n ḫr(j) dmt n ḥf(ɜw) nbt qsn: m hrw tp(j) jn jw mwt.f jn jw ᶜnḫ.f? rḫ ḫpr jm.f? qɜdy, ḏɜjs, mw. sḥm, ᶜtḥ. swr jn ḫr(j) dmt. jr smn.s ḫt.f, jw.f r ᶜnḫ. jr qᶜ.f jm.s jw.f r mt.

A remedy[1] which is prepared (lit. made) for the one who has been bitten by a venomous snake[2] of whatever (lit. any) kind. On the first day: will he die or will he live? (How) to know (what) will happen with him[3]? *Qady*[4] (agama lizard?), wild rue?[5], water. Crush, filter[6]. To be drunk[7] by the one who has been bitten. If the remedy (lit. it) remains (lit. sets) in his belly, he will live. If he vomits what is in his belly (lit. therein) he will die.

7.2.2.1 Note 1

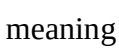
This spelling *rrt* instead of *pḫrt* is first encountered in the *Brooklyn Papyrus* in Paragraph 14,

and this manuscript uses this alternative spelling consistently throughout the treatment section.

7.2.2.2 Note 2

The text explains to the practitioner that the remedy must be given on the day that the person is bitten. This remedy is given as a test to see if the bite victim will live or die. If he manages to keep the remedy in his stomach, it serves as an indicator that he will live, but if he rejects the remedy, it is an indicator that he will die.

7.2.2.3 Note 3

A precise meaning for the word *qɜdy* is tricky to find because the dictionaries simply refer to an animal of some sort. Both Hannig (2006:918) and Erman & Grapow (vol. 5, 1931:15) give a meaning of *Tier* (animal), for  (*qɜdyt*). *Ebers Papyrus* treatment 339 (56[13]) makes use of *jmy qɜdyt* (innards of the *qady* animal) in its treatment. Regarding the identity of the *qady* animal in the *Ebers Papyrus*, Lelanne & Métra (2017:117) refer to Sauneron (1989:55–56, note 3).

Sauneron (1989:55) points out that the name *qɜdy* appears again in Paragraph 47b of the *Brooklyn Papyrus*, where the snake determinative  is used instead of the cow hide , so it is not the same creature that we have here in Paragraph 40. In Paragraph 47b a remedy is prepared for the bite of the *qɜdy* snake. Investigating possible identities for the qady animal, Sauneron (1989:56) says that there are two similar words to *qɜdy*: the Coptic word ⲕⲁⲧⲁⲓ which means ‘grasshopper’, and the Ptolemaic word *kɜt* for ‘bee’. However, it is doubtful that the *qɜdy* is a bee or a grasshopper because treatment 339 in the *Ebers Papyrus* requires using the insides of this creature. It would need to be a bit bigger than a bee or a grasshopper in order to access the innards effectively.

A possible answer as to the identity of the *qɜdy* is found by Sauneron (1989:56) in Anderson’s *Reptilia and bactria (Zoology of Egypt, I, p. 112)* where the Arabic word قاضي (*qady*) is used to refer to a particular lizard, قاضي الخبل أزرق – blue qady of the mountain, the *Agama flavimaculata* – the blue desert lizard.

In fact, several agamas which are found in Egypt today have the Arabic word قاضي (qady) in their names:

Pseudotrapelus sinaitus – *qadi sinaʾ* – Sinai Agama (El Din 2006:121)

Trapelus mutabilis – *qadi al-jabal* – Changeable Agama (El Din 2006:124)

Trapelus pallidus – *qadi al-jabal al-bahit* – Pallid Agama (El Din 2006:125–126)

Trapelus savignii – *qadi al-jabal al-ramli* – Savigney's Agama (El Din 2006:127)

This does lead one to wonder if the Egyptian name *qɜdy* has been carried over into the Arabic language. Even the consonants and their order are identical in both languages. The ancient Egyptian *qɜdy* may well be an agama lizard.

7.2.2.4 Note 4

Sauneron lists the identity of the *ḏɜjs* plant as unknown because its identity had not been established in his day. It was later investigated by both Aufrère (1986:6–9) and Miller (1994:349–357). The *ḏɜjs* plant is mentioned fairly extensively in various texts, both medical and magical, and appears on a list of plants that were forbidden to be eaten, or even taken into the temple of Isis at Philae. Erman & Grapow (vol. 5, 1931:520) confirm this prohibition on the *ḏɜjs* plant, saying it could not be eaten or used in the temple.

Figure 46: Wild Rue (*Peganum harmala*)[147]

By comparing its ancient medicinal uses with those of plants in *Medicinal plants of North Africa* (Boulos 1983), Miller was able to narrow down the list of candidates for the *ḏɜjs* plant

[147] Photograph of wild rue: '*Peganum harmala* flower' by Ostenfuchs is licensed under Creative Commons License: CC BY 2.

and notes that *Peganum harmala* (wild rue, Syrian rue, African rue) in Figure 46 (above) corresponds very closely (Miller 1994:352).

7.2.2.5 Note 5

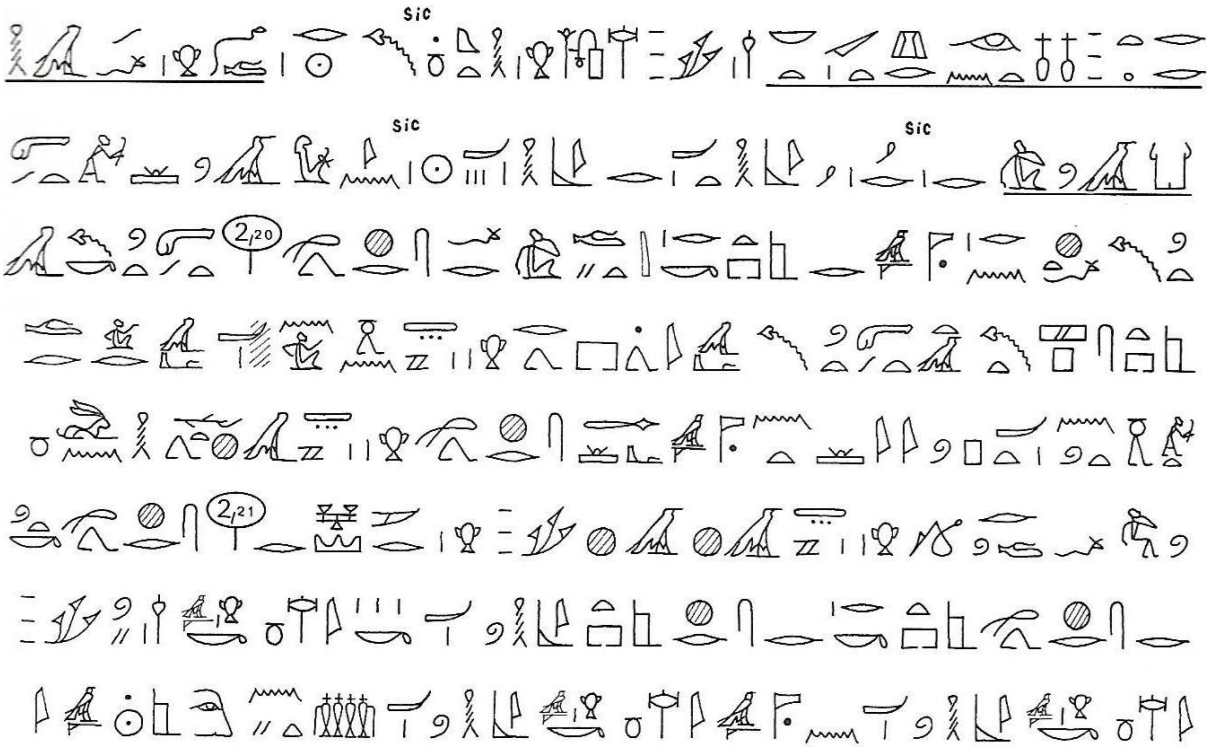
The two signs  present a puzzle at first. However, Sauneron (1989:195) points out that on analogy with similar signs in Paragraph 67 () the signs must spell the word *ʿtḥ* as indicated by the context in Paragraph 67: *broyer finement avec de l'eau; metter dans un pot-à-filtre; filtrer* (crush finely with water; place in a filtration pot; filter). It appears that the sign in the group of signs here in Paragraph 40 should be  .

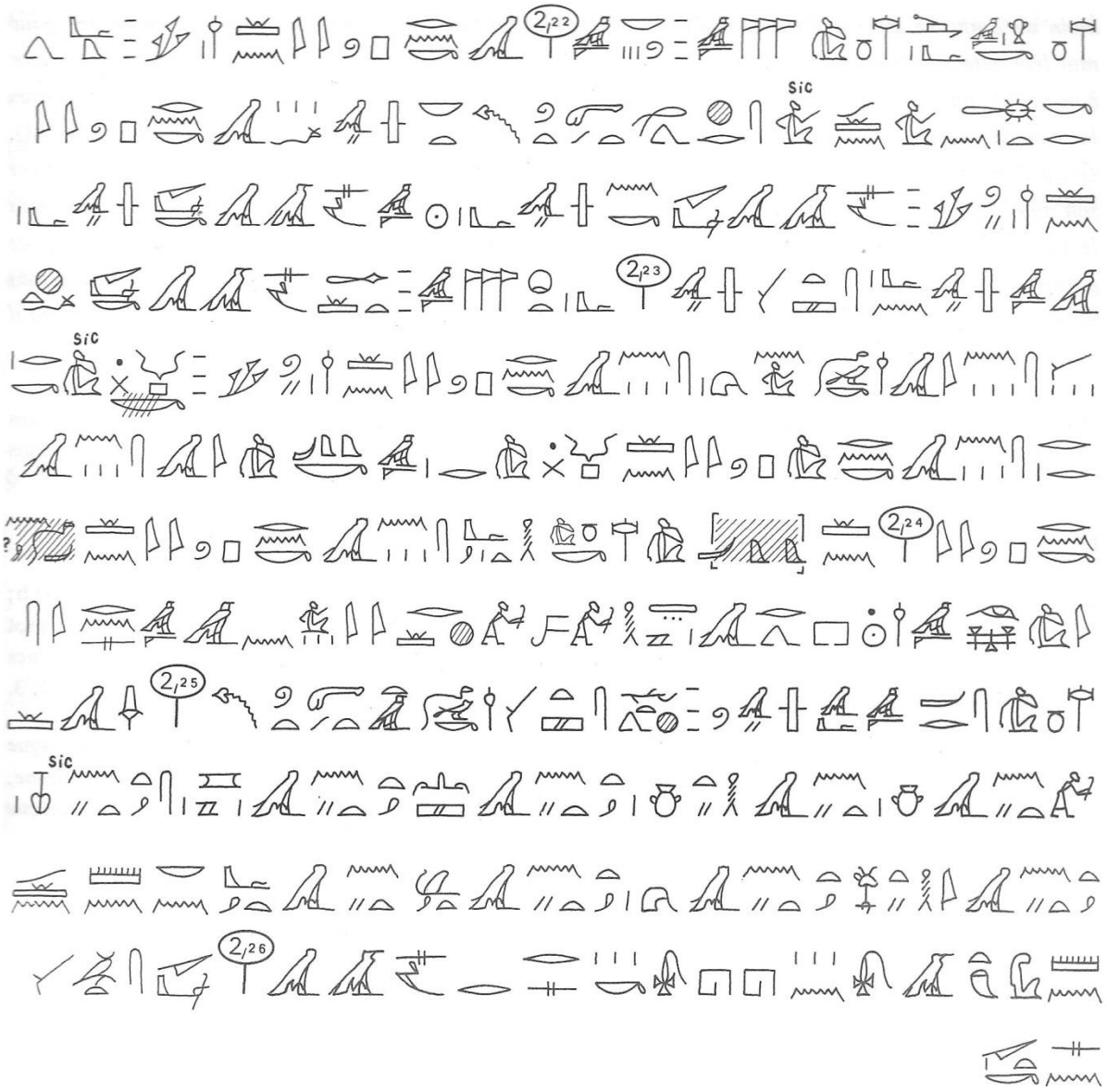
7.2.2.6 Note 6

The sign  is used consistently as an abbreviation for the word *swr* (to drink) throughout the treatment section.

7.2.3 Paragraph 41

Brooklyn Papyrus, page 2, lines 19 to 26





rrt nfr nfr jrt n ḫr(j) dmt nbt: ḥḏw: nḏ snᶜᶜ ḥr ḥ(n)qt. qᶜ r hrw 1. ḏd ḥr.f m ḥkɜw: r, r, jbḥ r jbḥw! rᶜ jn sɜw mtwt. ḫft r n ntr r st r.k. mdt.f r sḫr mtwt.k. m st sšp.t. tɜ mtwt! mj! pr ḥr tɜ! jn.n.j ṯst m ᶜ.j r dr.t. jn.n.tw ṯst pwy nt ntr ᶜɜ. sḫr ḥr tɜ m ḫt ḥwn.f, rd ḥr tɜ, ɜḫɜḥ ḥr mrw wɜt, r sḫr.tw.k r sḫr st r.k, r.sḫr st jbḥw.k.

jnḏ-ḥr.k ḥḏw! jnḏ-ḥr.k jbḥ n ntr! jnḏ-ḥr.k jbḥ ḫnty wsjr! jnḏ-ḥr.k šnᶜ nḏ ntrw nbw, m rn.k pwy n ḥḏw! ᶜq.k r ḫt n sj n sj. sḫr mtwt nbt jmy.f m rn.k pwy n ḥḏw! smɜ.n.k jmj ᶜ rᶜ. smɜ.k jmj ᶜ ḥr, jmj ᶜ n stš, jmj ᶜ psḏt ntrw ᶜɜt. smɜ.k ḫftyw.sn jm! ḥḏ.k n.j tp.sn m rn.k pwy n ḥḏ! wp.k r.k r r.sn, m rn.k, pwy wp r. wnm.k jm sn m rn.k pwy nj [*wnm*]. *nḏ.k hᶜt sn n rn.k pwy n* [*nḏḥt*].

j jrt ḥr, ḥḏ pr m tɜ ḫw rḫyt n ḥr! *rn.s js nḏ.s ḥr m-ˁ jmyw-ḫt stš. ḥḏ.k tɜ mtwt, sḫm, nty m jb, nty m ḥɜty, nty m nnšm, nty m mjst, nty* (*m*) *smɜ.t, nty m jḥtyt, nty m tp, nty m pḥ*(*wy*), *nty m ˁt nb n mn n mn*(*t*). *tɜ srf n hh.k r.s smɜ.s. mwt.s n dmt.k.*

A very good remedy[1] to prepare for someone who has been bitten: onions: grind finely in beer. (Drink) and vomit[2], for one day. Recite over him with magic spells: a mouth, a mouth, a tooth against teeth[3]. It is Ra who wards off venom. While the mouth of the god is at the place of your mouth, his word will strike down your venom, (and) you will flow out from where you are (lit. the place). O Venom (lit. this venom)! Come! Come out upon the ground[4]! I have brought a tooth in my hand in order to drive you out. This tooth of the great god has been brought. It fell upon the ground (and) by falling back, became youthfully vigorous[5] again, taking root (lit. growing) on the ground, (and) growing green upon the desert path, so that you may be overthrown, (and) in order to strike down your mouth (lit. the place of)[6], (and) to overthrow the marks (lit. position) of your teeth.

Hail to you, Onion[7]! Hail to you, tooth of the god! Hail to you, original / important (lit. foremost) tooth of Osiris! Hail to you, guardian who protects all the gods, by means of your name, that[8] of Onion! May you enter into the stomach of X, son of Y (lit. a person of a person). Ward off all the venom which is in there, by means of your name, that of Onion! You have destroyed that which is in the hand of Ra. Kill that which is in the hand of Horus, (and) that which is in the hand of Seth, (and) that which is in the hand of the Great Ennead of gods. Destroy their enemies there! Destroy their chief[9] for me by means of your name, that of Onion.

Open your mouth against their mouth, in your name, of 'that which opens the mouth'. Consume them there in your name, of 'that which [consumes]'[10]. Grind their flesh in your name, that of ['tooth']'[11].

O Eye of Horus, light (which) appears on the land and strikes the subjugated ones[12] for Horus! Indeed, its name[13] (and) it protects Horus from those who are in attendance on Seth. You destroy this venom, Powerful One, which is in the mind[13], which is in the heart, which is in the spleen, which is in the liver, which is (in) the lung, which is in the throat[14], which is in the head, which is in the posterior, which is in every limb of X, son of Y (lit. someone of

someone). The heat from the blast of your fire is against the venom (lit.it) in order to kill it. It dies of your bite[15].

7.2.3.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.3.2 Note 2

The sign  is often used as an abbreviation for the verb *qꜥ* (to vomit), in this manuscript. Examples of this are found in Paragraphs 45a, b and c. The word *qꜥ* is usually preceded by the verb *swr* (drink), or the phrase *swr jn wḫd dmt* (to be drunk by the one suffering the bite wound), or *swr jn ḫrj dmt* (to be drunk by the one who has been bitten) (see examples in Paragraphs 43c and 43a respectively). The sign  , which is used consistently throughout this treatment section of the Papyrus for the word *swr*, has been omitted here.

7.2.3.3 Note 3

As Sauneron (1989:58) points out, it is often difficult to gauge an exact meaning in magical texts. Sauneron's translation (1989:58) here, which he admits is a little uncertain, is: 'a mouth (brought against another) mouth, a tooth against (the other) teeth'. As we are to see further down in this paragraph, the onion is likened to a tooth of Osiris. Here, a tooth against teeth could very well refer to the onion versus the fangs and therefore the venom of the snake. The onion was used extensively for medical purposes (Nunn 2002:14) and appears frequently in this treatment section.

7.2.3.4 Note 4

The treatment given to the patient is an emetic and it is given with the specific intention of causing the patient to vomit the venom out of his / her body. This line 'come out upon the ground' is important because it indicates that the ancient Egyptian healer recognised that the venom caused the patient to be ill and saw the venom as something that had invaded the body and had to be removed.

7.2.3.5 Note 5

This may be a reference to a myth, no longer extanct, which is related to the primary tooth of the god. Refer to 8.4.4.20 for a note on the relationship between the onion and teeth in the *Pyramid Texts*.

7.2.3.6 Note 6

This line *r sḫr st r.k* could also be transliterated as *r sḫr st-r.k,* which changes the meaning from 'to overthrow the position of your mouth' to 'to overthrow your utterance' (see Faulkner 1986:206 for *st-r*). The meaning is more likely to be the former rather than the latter as the address is to the snake.

7.2.3.7 Note 7

The determinative  suggests that the onion is viewed here as divine or from a divine source.

7.2.3.8 Note 8

The demonstrative pronoun *pwy* is used in this text. It is interesting to note that Allen (2005a:52) says that the *–w* series of pronouns are the older version of the *–n* series and that they are still found in Middle Egyptian texts of a religious nature or in 'special functions'. This suggests that the *–w* series was more frequently used in texts prior to the Middle Kingdom Period. If Middle Egyptian first began to appear around 2100 BCE (Allen 2005a:1), then the use of this specific pronoun could suggest that the original material on which this copy (the *Brooklyn Papyrus*) is based could be placed in the Old Kingdom Period.

7.2.3.9 Note 9

The word *tp* could have a meaning of 'head' (referring to the body part) or it could mean the 'leader' or 'chief' of the enemy. Perhaps it should be in the plural to correspond with the plural suffix pronoun if it was the heads of the enemy that was intended. As the word *tp* is in the singular, this current translation prefers a translation of 'chief', but it really could be either.

7.2.3.10 Note 10

The word *wnm* is restored in the lacuna. There must have been sufficient traces of signs in order for Sauneron to do this. One can also make a reasonable assumption that this word in the lacuna should be *wnm* on analogy with the preceding line, where the first verb in the line becomes part of the epithet of the onion.

7.2.3.11 Note 11

Sauneron (1989:59) explains that the word *nḏḥt* is a later form of the earlier *nḥḏt*.

7.2.3.12 Note 12

Sauneron (1989:57) leaves the word *rḫyt* untranslated. The word *rḫyt* appears in Faulkner (1986:152) with possible meanings of ‘mankind’, ‘common folk’ and ‘subjects (of a king)’, and Hannig (2006:507) provides an interesting possible meaning of *kleibitz-volk* (lapwing people). According to Shaw & Nicholson (2002:244), the *rekhyt* bird is a lapwing, specifically a species of crested plover (*Vanellus vanellus*), which appears as if its wings are bound behind its back, rather like a captive with hands bound behind him / her. This bird, say Shaw & Nicholson (2006:244), was frequently used as a symbol in ancient Egypt for subjugated people.

7.2.3.13 Note 13

Both *jb* and *ḥɜty* refer to the heart as an organ. *jb* may also refer to the mind as the seat of emotion and thought (Faulkner 1986:14). For this reason, the current translation uses the word *jb* as ‘mind’ and *ḥɜty* as ‘heart’ and not both words as ‘heart’ as Sauneron (1989:57) has done. The writer of the Papyrus surely intended two different meanings.

7.2.3.14 Note 14

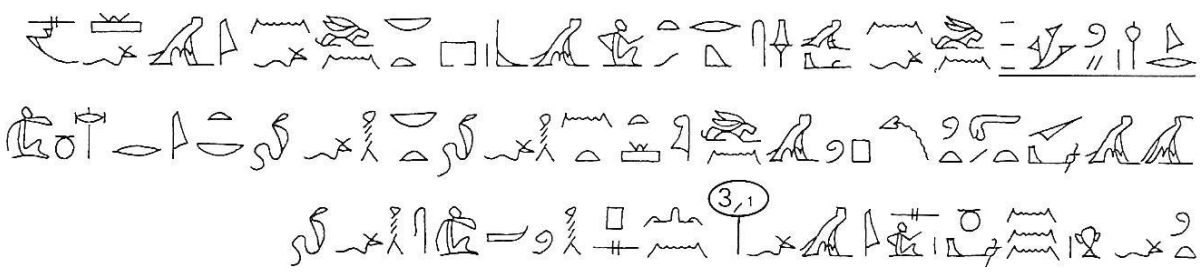
The spelling used here for the word *ḥtyt* is a variant spelling found in Erman & Grapow (vol. 3, 1929:181): .

7.2.3.15 Note 15

Ultimately the venom dies of the ‘bite’ of the onion. Like has been pitted against like – the tooth of the snake has been defeated by the tooth of the god in the form of an onion.

7.2.4 Paragraph 42a

Brooklyn Papyrus, page 2, line 26 to page 3, line 1



jr ḥḏw, wnn.f m ˁ ḫrp srqt, m bw nbt wnn.f jm.f. smɜ mtwt pw m wn-mɜˁ[t] nt(j) ḫf(ɜw) nbt ḫf(ɜt) nbt. jr nḏ.tw.f ḥr mw nwj s(j) jm.f, nn psḥ.s ḫf(ɜw).

Regarding the onion, it exists under the hand of the Controller of Serqet, in every place where it is found[1]. It is this which in truth detroys the venom of every snake, male and female (lit. every male snake and every female snake)[2]. If one crushes it in water and puts it on (lit. takes care of) the person, a snake will not bite him[3].

7.2.4.1 Note 1

In Paragraph 41 (see 7.2.3) the importance of the onion became apparent, and here in this particular sentence one learns that the Controller of Serqet is never without it. It is one of those ingredients that is always at hand.

The onion was a popular and much used ingredient. According to Murray (2000c:613) it is possible that the onion was already being used during the Twelfth Dynasty, and it was definitely in use by the Eighteenth Dynasty. Not only was it used medicinally, but it was viewed as divine and Buhl (1947:91) says that the onion was still worshipped in early Christian times as a god at Pelusium, an important city in the Nile delta which became a Roman provincial capital. Even the deceased took their onions with them: there have been finds of onion bulbs within mummy wrappings, in mummy body cavities and in their eye sockets or armpits (Darby *et al* 1977:661), and the living wore them around the neck during one of the rituals of the Sokaris festival (Darby *et al* 1977:662).

Nunn (2002:215) lists the following pharmacological properties for the onion: ‘antibiotic, expectorant, diuretic’, reduction of ‘platelet aggregation’ (helps blood platelets from clotting), and reduction of ‘platelet cholestrol’, and Manniche (1989:69) says that the ancient Egyptians used onion juice as an ‘antibiotic, diuretic and expectorant’ and also as a substance that was rubbed onto wounds. Onion, according to Dioscorides, was used to cause purging,

and also in a poultice together with honey, salt and rue for dog bites (Osbaldeston & Wood 2000:309).

The onion is by far the most popular and frequently used ingredient in the *Brooklyn Papyrus* recipes. It is most called-upon for use as an emetic, and most notably in cases where the bites are from particularly venomous snakes.

7.2.4.2 Note 2

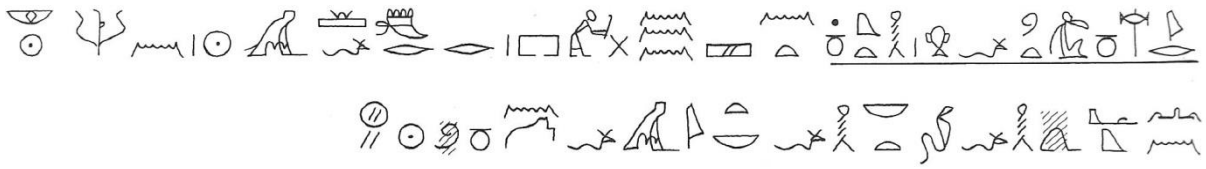
Refer to 5.2.14.3, note 3, in Chapter Five for an explaination of the use of *nbt* and *nb* in this manuscript.

7.2.4.3 Note 3

The onion is used as a snake repellent in this treatment by applying it to the person's skin.

7.2.5 Paragraph 42b

Brooklyn Papyrus, page 3, line 1



jr nḏ.tw.f ḥr ḥ(n)qt ntš pr r ḏr.f, m hrw n wpt-rnpt ḥ3b, nn ʿq ḥf(3w) nbt ḥf(3t) nbt jm.f nw.

If one crushes it in beer and sprinkles the entire house with it, on the day of the New Year feast, no male or female snake[1] will enter there (at any) time[2].

7.2.5.1 Note 1

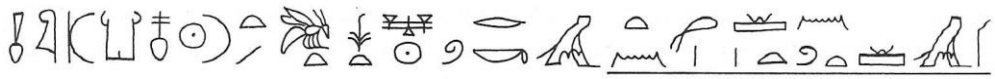
Refer to 5.2.14.3, note 3, in Chapter Five for an explaination of the use of *nbt* and *nb* in this manuscript.

7.2.5.2 Note 2

This mixture of onion crushed in beer is being used as a snake repellent for the dwelling in this treatment.

7.2.6 Paragraph 42c

Brooklyn Papyrus, page 3, line 1



qmɜ.n.tw.t mḏɜt tn m rk nsw bjty rˁ-nfr-kɜ, mɜˁ ḫrw.

This papyrus was revealed in the time of the king of Upper and Lower Egypt, Neferkare[1], the justified (lit. true of voice)[2]

7.2.6.1 Note 1

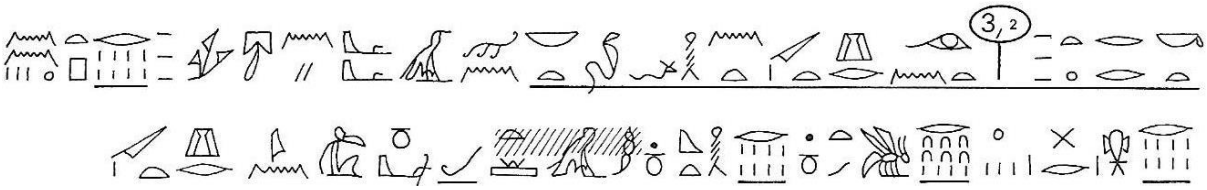
In all probability, Neferkare is Pepi II (Sauneron 1989:60) or Shabaka (Meyrat 2019:724–726) and not Ramesses IX, although Neferkare is a praenomen used by several Egyptian kings (see 2.2.3)

7.2.6.2 Note 2

Very often writers of medical or scientific papyri liked to claim that a papyrus had been discovered during the reign of a king of great antiquity, probably to give credence to its contents, which may be the case here. Interestingly, as Sauneron (1989:60) points out, this text – namely Paragraphs 42a and b – although suggestive of Late Egyptian and written after the start of the New Kingdom Period, at the same time contains elements of classical vocabulary. These two paragraphs, according to Sauneron (1989:60) are reminiscent of many of the *Old Kingdom Pyramid Texts* that are dedicated to the protection of the deceased from snakes.

7.2.7 Paragraph 43a

Brooklyn Papyrus, page 3, lines 1 to 2



kt rrt jrt n ḫr(j) dmt nt ḥf(ɜw) nbt: šnj n ꜥnj: $^{1}/_{8}$*, tpnn:* $^{1}/_{8}$*, sɜ-wr:* $^{1}/_{64}$*, bjt:* $^{1}/_{8}$*, ḥ(n)qt nḏmt:* $^{1}/_{32}$*. ꜥtḫ. swr jn ḫr(j) dmt.*

Another remedy[1] prepared for the one who has (suffered) the bite of any (kind of) snake: 'Hair of the baboon' plant[2]: $^{1}/_{8}$, cumin[3]: $^{1}/_{8}$, *sory* mineral [4]: $^{1}/_{64}$, honey[5]: $^{1}/_{8}$, sweet beer[6]: $^{1}/_{32}$. Filter. (For) drinking by the one who has been bitten[7].

7.2.7.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.7.2 Note 2

Perhaps the leaves of this plant have a furry grey appearance, reminiscent of baboon fur, or some other characteristic that reminded the ancient Egyptians of a baboon. People habitually use descriptive names for plants that remind them of characteristics, for example: devil's claw (*Harpagophytum procumbens*) or sweet thorn (*Vachellia karroo /Acacia karroo*[148]). Unfortunately it is not known what plant 'hair of the baboon' is and Sauneron (1989:61) says that the name of this plant is new. It does not appear in Von Deines & Grapow's *Wörterbuch der Ägyptischen drogennamen* (1959).

7.2.7.3 Note 3

The earliest evidence of cumin (*Cuminum cyminum*) in ancient Egypt is seeds found in Deir el-Medina, which date to the Eighteenth Dynasty (Murray 2000c:644).

The Coptic name *tapen* or *thapen* was derived from the Egyptian *tapnen*, and cumin also appeared under the Egyptian name *qamnini* (Loret 1892:72). Cumin seeds (see Figure 47 below) are used as a simulant and a carminative[149] and also in the perfume industry (Manniche 1989:96). Traditional uses in ancient Egyptian times include relief of stomach problems, coughs and chest problems, body pains, tooth disease and headaches (Manniche

[148] The African *Acacia* species have recently been renamed *Vachellia* and *Senegalia*. The *Acacia* species of approximately 1500 members is widespread throughout Africa, Australia, Asia and the Americas. In 2011 it was ruled at the 17th International Botanical Conference that the name *Acacia* would be reserved for the native Australian species only. (Dyer 2014 – https://doi.org/10.2989/20702620.2014.980090 (accessed online 9th April 2019). To avoid any confusion in this thesis, the original and new classicfications will both be given as most literature related to botany in ancient Egypt is prior to the reclassification and refers to *Acacia*.

[149] A carminative is a preparation or herbal remedy intended to prevent the formation of, or aid the expulsion of, gas in the intestines (https://www.merriam-webster.com/dictionary/carminative) (accessed online 16th December 2019).

1989:97), as external applications, anthelminthic, oral rinses and suppositories (Darby *et al* 1977:799).

Figure 47: Cumin (*Cuminum cyminum*) seeds[150]

Estes (2004:144) says that although cumin was used as a carminative, its general use was 'non-selective' and it was never used for eye disorders. Dioscorides[151] says that cumin was used in a hot drink for those suffering from breathing difficulties and with wine for those who had been bitten by venomous creatures.

7.2.7.4 Note 4

There is no certain meaning for the word *sɜ-wr* in the dictionaries, therefore Sauneron (1989:61) understandably leaves the translation as *sôry* mineral. One may presume that this product *sɜ-wr* is of mineral origin due to its determinative sign  .

In Von Deines & Grapow (1959:420) one finds the word *sɜ-wr* with the same hieroglyphic spelling that is used here in the *Brooklyn Papyrus*, and also in Ebers 27 where Lelanne & Métra (2017:27) refer to it as a *résin* or perhaps the mineral σωρι (sory) of Dioscorides. This mineral named *sory* was given by Dioscorides in a list of minerals containing copper and iron (Von Deines & Grapow 1959:421), and, according to him, Egypt was where the best sory for medicinal purposes was to be found (Bandy & Bandy 1955:50).

Sory is discussed at length in the work of Georgius Agricola of 1546. This work was translated from the original in Latin by Bandy & Bandy (1955) for the Mineralogical Society of America. Sory's desirable medicinal qualities given by Agricola are: astringent, cleansing, dispersal of disease and keeping disease under control (Bandy & Bandy 1955:13).

[150] Photograph of cumin (*Cuminum cyminum*) seeds: 'Gastrocast # 118' by podchef is licensed under Creative Commons license CC BY-NC-SA 2.0.
[151] Dioscorides was a first century CE Greek Physician, botanist and pharmacologist, and author of *De Materia Medica*.

The mineral is black in colour (Bandy & Bandy 1955:5) and gives off a foul odour when heated (Bandy & Bandy 1955:8), which is probably due to its sulphur content. Sory is also described as a 'black earth impregnated with vitriols',[152] in other words, sulphates. In addition, sory is described as a 'green earth, or some earth impregnated with it'.[153] Interestingly, the *melanteria* of Dioscorides was also called the 'vitriol of shoemakers' and is sold under the name *sahira* or *zāgahdan* (an impure iron sulphate) in the Cairo bazaars (Rosner 1979:101). According to Ibn al-Baitar,[154] *sahira* is an ancient name for vitriol and also for the black crystalline masses which form in the water of the copper mines (Rosner 1979:101).

Agricola says that the mineral chalcitis is the 'parent' of sory (Bandy & Bandy 1955:48). In other words, sory is derived from chalcitis (copper pyrites or chalcopyrite, $CuFeS_2$). From the formula, one can understand that chalcopyrite is a copper-iron sulphide. In their footnotes, Bandy & Bandy (1955:47) say that sory is 'flowers' of *melanteria*, and they themselves (Bandy & Bandy 1955:50) are of the opinion that it is possible that sory is melanterite 'with finely divided pyrite' or even voltaite (hydrated potassium iron sulphate). Melanterite is a hydrated iron sulphate ($Fe^{2+}SO_4 \cdot 7H_2O$) that is formed once minerals which contain iron, such as chalcopyrite, decompose.[155] It is a water-soluble oxidation product of pyrite, according to Deeson (1973:197), and in arid climates pyrite changes easily and gives rise to a number of hydrous iron sulphates (Bariand 1976:60).

The mineral is apparently water-soluble and may be used as a black dye. According to Agricola, if it is sprinkled on a 'burst vein' it will stem bleeding and it is also used to expel pus and dry excrement. It may be mixed with honey together with wine, water or olive oil and used as an emetic (Bandy & Bandy 1955:50). This medicinal information fits in with what we know about *sꜣ-wr* in the remedy mentioned above in Paragraph 43a of the *Brooklyn Papyrus*, where the *sꜣ-wr* is mixed with honey and sweet beer as a remedy to be drunk by the patient. In *Berlin Papyrus* 116, and Ebers 27, 83, 91 and 332 *sꜣ-wr* is used in remedies to be

[152] www.merriam-webster.com (accessed online 15th May 2017).
[153] www.mindat.org (accessed online 15th May 2017).
[154] Ibn al-Baitar was born in Spain in 1197 and died in Damascus in 1248. He was a botanist who travelled in Asia Minor and North Africa, eventually settling in Egypt where he studied and classified plants. He wrote two large volumes which have been translated into many languages: one on medicinal drugs and the other an encyclopaedia, on drugs and beneficial foodstuffs (https://en.wikipedia.org/wiki/Ibn_al-Baitar. Accessed 20th June 2020).
[155] www.mindat.org (accessed online 15th May 2017).

drunk, as it is here in the *Brooklyn Papyrus*, and it is also used in ointments (Von Deines & Grapow 1959:420).

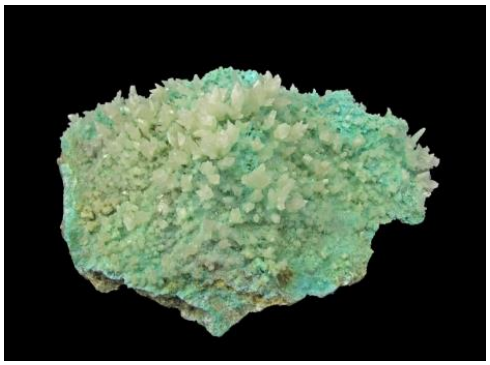


Figure 48: Melanterite[156]

Consideration of the above information points to a possible identification for *sꜣ-wr* as melanterite (Figure 48 above), a hydrated iron sulphate. It appears that the origin of the word 'sory' is not Greek, but, in fact, ancient Egyptian, derived from *sꜣ-wr*.

7.2.7.5 Note 5

In his *De materia medica*, Dioscorides says that honey is given to snakebite victims to help cure them and it is also used for ulcers and other skin eruptions (Osbaldeston & Wood 2000:227–228).

Honey has known anti-bacterial and anti-fungal properties (Nunn 2002:148). The reason that honey inhibits the growth of bacteria is because it is hypertonic (Estes 2004:69), which means that the concentration of solutes (in this case sugar) in honey is greater than that in the bacteria. As a result, the honey draws water out of the bacteria, which effectively kills them. Furthermore, says Estes (2004:69), an enzyme called glucose oxidase is secreted by the salivary glands of the bees. This converts the glucose found in plant nectars to gluconic acid (a mild antibacterial agent) and hydrogen peroxide which is used as an antiseptic. In addition to this, bees manufacture propolis which promotes healing of ulcers and burns and has been shown to inhibit the growth of the bacteria *Staphylococcus aureus* and *Escherichia coli*, both of which occur in the human body (Estes 2004:69). Additionally, the osmotic effect of honey helps to reduce swelling (Nunn 2002:149).

[156] Photograph of melanterite: 'file:Melanterite-657239.jpg' by Robert M. Lavinsky is licensed under Creative Commons license CC BY-SA 3.0.

The use of honey on snakebite wounds may have discouraged the growth of bacteria and therefore given the wounds a chance to start healing themselves. Unfortunately, however, if the venom contained a cytotoxin wound healing would have been compromised owing to necrosis and the breakdown of tissue.

7.2.7.6 Note 6

It is not entirely clear what sweet beer is. Two possibilities raised by Metcalfe (2016:159) are that sweet beer may be beer that has had a sweetening agent such as honey added to it, or the fermentation process may have been halted before all of the sugars could be converted into alcohol. Sweet beer is used in only one wound treatment in the *Brooklyn Papyrus*. Its primary use was as a carrier liquid for other ingredients for emetics and ingestible treatments.

7.2.7.7 Note 7

One would presume that the ingredients are mixed and perhaps crushed together before being filtered. The filtrate is then drunk by the patient.

7.2.8 Paragraph 43b

Brooklyn Papyrus, page 3, lines 2 to 6

ḏd ḥr.f m ḥkɜw. jw ḏḥwtj ꜥpr m ḥkɜw.f, ḏbɜw m ɜḫw.f r šnt tɜ mtwt.

nn sḫm.t m ꜥt nb(t) n s n st, mj šnt sbjw m-sɜ sb.sn ḥr rꜥ ḏs.f.

ḫnr.k sw m ḥꜥ nb n s n s, mj ḫnr.k tɜwj n rꜥ. ḫꜥm mɜꜥt r šnbt.k jsw jry. ḫꜥ.k r.s, ntr pwy špss, sɜ ntrt wrt ḥkɜw. šnt.k s n s, mj šnt.k mn ḏs.k hrw pwy n pgɜ qꜥḥt.k. sḫr.k sw r tɜ m ꜥt nb n s n s, mj sḫr.k sbjw twy sbj ḥr wsjr. sḫr.k tɜ mtwt r r n psḥ!

m.k jn.n ntr ḫt jm.f ḏs.f r sḫt, r drt, r bḥn tɜ mtwt nt ḫf(ɜw) nbt ḫf(ɜt) nbt ntj mḥ ꜥt nb(t) n s n st.

mj! prj ḥr tɜ! jnk ḏḥwtj, smsw sɜ rꜥ!

Recite over him with magic spells. Thoth[1] comes, equipped with his magic, (and) equipped (lit. adorned) with his magical power to exorcise this venom.

You will not have power over any limb of X, son of Y (lit. a man of a woman)[2], (just) as the insurgents were exorcised after they rebelled against Ra himself[3].

You shall lock it out from all the flesh of X, son of Y, (just) as you lock up the Two Lands (Egypt) of Ra. Maat approaches your breast (as) a substitute thereof. You appear before the venom (lit. it), O Noble God, son of the Great Goddess of Magic![4] You shall exorcise X, son of Y, like you exorcised your own suffering, on the day of the wounding of your shoulder[5].

You shall throw the venom (lit. it) down to the ground from every limb of X, son of Y, (just) as you overthrew the rebels that rebelled against Osiris[6]. You shall make this venom fall from the opening (lit. mouth) of the bite wound!

Behold! The god has brought something divine (to put) in the wound (lit. itself) to make this venom fall[7], and to expel (it), (and) to remove (this venom) of every male snake (and) of every female snake, which fills every limb of X, son of Y.

Come! Come out upon the ground!
I am Thoth, eldest son of Ra![8]

7.2.8.1 Note 1

Thoth is a very important deity in terms of this recitation. It was Thoth (in the myth of Isis and Horus) who was sent by Ra to cure the infant Horus after he was bitten by a snake in the marshes (Pinch 2006:145–146) (see 8.4.2.2).

7.2.8.2 Note 2

The words *s n st* or *s n s* translate literally as 'a man of a woman' or 'a man of a man'. It is best translated as X, son of Y. Presumably the priest would insert the name of the patient and relevant parent into the invocation formula to the deities and the venom, instead of saying *s n s*.

7.2.8.3 Note 3

The venom is perceived to be an enemy that has attacked the person, and hence its comparison with the rebels that have gone against Ra. In the *Book of the heavenly cow* is the myth of how humankind plans to rebel against Ra as he grows older. It is most likely this myth that is implied in the line referring to insurgents (or rebels) against Ra.

7.2.8.4 Note 4

This address is likely to be to Thoth, as the great god of magic, while the 'Great Goddess of Magic' may refer to Isis whom Hart (2005:79) describes as a goddess of 'great magical powers'. This may, however, also be a reference to the goddess of magic, Weret Hekau,

whose name literally means ‘Great of Magic’, and is also an epithet of several goddesses including Isis, Mut, Sekhmet and Pakhet (Hart 2005:163).

7.2.8.5 Note 5

The inference here is that the god was able to heal himself from his suffering, and therefore has the ability to heal the one bitten by the snake. This may be a reference to a myth that is no longer known in which the god suffers an injury but is able to heal himself.

7.2.8.6 Note 6

The spelling of  for Osiris is unusual. The determinative  is used instead of  . This spelling is used consistently throughout the *Brooklyn Papyrus* (see Paragraphs 41, 80b, 90b and 99c).

7.2.8.7 Note 7

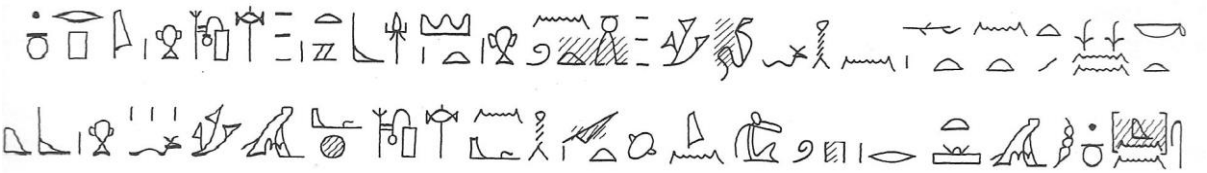
The causative verb *sḫr*, which literally means ‘to cause to fall’, can also have a possible meaning of ‘to exorcise’ (Ritner 2008:48).

7.2.8.8 Note 8

One can picture the priest performing this invocation. The words are addressed firstly to the venom and then to the god of magic, Thoth. The priest tells the venom that Thoth is coming, bringing his magic powers. Thoth is then invoked to dispose of the venom and to heal the bite victim, just as he is able to heal himself. In the last part of the invocation, the priest utters the words as if he is Thoth himself, and commands the venom to leave the victim.

7.2.9 Paragraph 43c

Brooklyn Papyrus, page 3, lines 6 to 7



kt: nnwt nt ḫt n ḫf(ɜw) jn.tw ḥr dšrt jɜbty. nḏ snᶜᶜ ḥr jrp s[*gn*]*n nḏmt, r-pw, swr jn wḫd dmt, ḥnᶜ nḏ snᶜᶜ ᶜḫmw.f ḥr bɜq. nḏ ḥᶜw n wḫd dmt jm. m šs mɜᶜ*(*t*). *ṯsj ḥ*(ɜ)*ty, srq ḥtyt. jw jr.tw.f r dr nsy*(*t*) *mjtt*.

Another (remedy): roots of wood-of-the-snake (plant)[1] (which) one brings from the Eastern Desert. Crush smoothly in wine or sweet [ointment][2], whichever. To be swallowed (lit. drunk) by the one suffering the bite, and crush its leaves and stems finely in moringa oil[3]. Cover and protect (lit. cover)[4] the body of the one suffering the bite with it. (It is) truly excellent[5]. The heart rate elevates, (and) the throat can breathe. One shall use it to drive out epilepsy and the like.

7.2.9.1 Note 1

It is not known what species of plant 'wood-of-the-snake' is. It appears again in Paragraph 46c of the *Brooklyn Papyrus*, where its use is also to enable breathing. Here, in this particular paragraph it is also used as an analeptic (a medication that stimulates the central nervous system) and a cardiotonic (a medication that tones the heart muscles) as Sauneron (1989:63) points out.

Sauneron (1989:63) informs us of an event recounted by Corkill in *Sudan notes and records.* Corkill was told of a man in Sudan who went to collect his camels and was bitten by a snake. He managed to make his way home and his son brought a root called *oran Zaid*, which he ground up in millet beer and gave to his father to drink. Along with some rhino horn and raw egg in water, the man eventually vomited up the concoction and recovered after several days (Corkill 1935:249).

7.2.9.2 Note 2

One may wonder why the plant matter is crushed in a sweet ointment, as an ointment is something that it smeared on a wound or the skin for healing. Faulkner (1986:252) has *sgnn* as 'tallow' which is an animal fat. Sauneron (1989:63) is most likely correct when he says

that the scribe wrote *sgnn* by mistake, instead of *ḥnqt*. Usually the preparations to be drunk are mixed with wine or sweet beer. In addition, the adjective *nḏmt* which follows the word agrees with *ḥnqt* with its feminine ending, and so an error may well have been made. The ingredient *sgnn nḏmt* is not known (Sauneron (1989:63), and only *sgnn* appears in Von Deines & Grapow (1959:809–810).

7.2.9.3 Note 3

The *Moringa* species originated in the sub-Himalayan areas of northern India and Pakistan, and were subsequently distributed in Africa, Asia, the Pacific and Carribbean islands, and South America (Brendler *et al* 2010:172).

Moringa seeds were used to make *bꜣq* (*ben* oil, or oil of *ben*). The *Moringa pterygosperma* is endemic to Egypt, according to Manniche (1989:122). Loret (1892:86), however, discusses oil of *ben* as coming from the seeds of the *Moringa aptera* (*Moringa peregrina*).

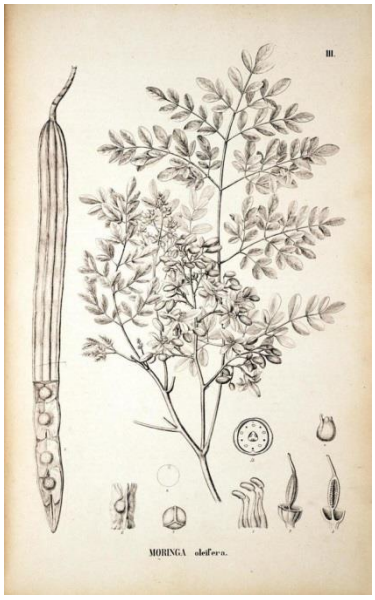


Figure 49: *Moringa oleifera*[157]

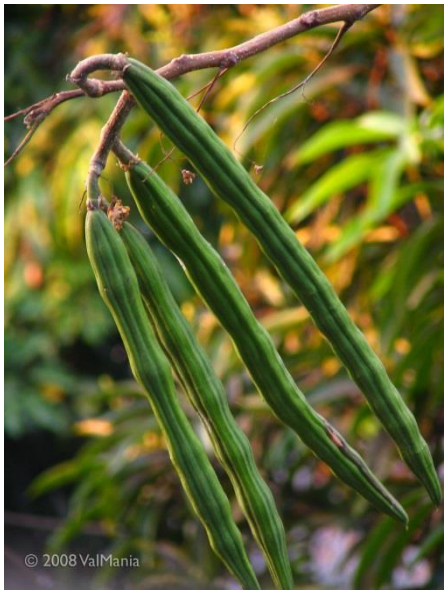


Figure 50: *Moringa oleifera* seed pods[158]

Medicinal uses of moringa, according to Brendler *et* al (2010:172) include treatments for wound healing and as an anthelminthic, anti-inflammatory, antibiotic and antihypertensive. Traditionally, juice from the bark, flowers, leaves and roots can be used to calm the nerves;

[157] Photograph of '*Moringa oleifera*' by Mauricio Mercadante is licensed under Creative Commons license CC BY-NC-SA 2.0.
[158] Photograph of '*Moringa oleifera*' by Valman is licensed under Creative Commons license CC BY-NC-ND 2.0.

and seeds, leaves and flowers are eaten for their nutritional value. The *Moringa* (see Figures 49 and 50 above) is used extensively in modern-day traditional treatments in Africa and Asia for a variety of ailments and all parts of the plant are utilised

In ancient Egypt, oil of ben could be used for stomach pains, as an enema, for gum diseases and as ear drops (Manniche 1989:123). The *Brooklyn Papyrus* only makes use of the oil, predominantly for wound treatments but it is included in one treatment to be ingested.

7.2.9.4 Note 4

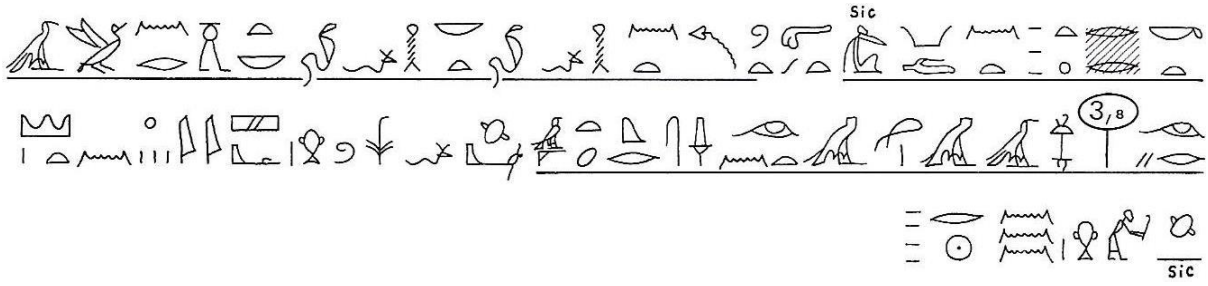
The word *nḏ* is translated by Sauneron (1989:63) as *enduire* (cover). Von Deines & Westendorf (1961:467) give possible meanings of *schützen* (to protect), and *retten* (to save). It may well be that the mixture of moringa oil and crushed wood-of-the-snake stems and leaves is being used as a magical treatment by smearing it onto the body to cover it as a form of protection. A single word in English is probably not sufficient to provide an adequate meaning for the word *nḏ* here.

7.2.9.5 Note 5

The phrase *m šs* is commonly used in medical texts and is an abbreviated form of *m-sšrw* (see Hannig 2006:833).

7.2.10 Paragraph 44a

Brooklyn Papyrus, page 3, lines 7 to 8



kt rrt nt ‹šd› mtwt nt(j) ḫf(ɜw) nbt ḫf(ɜt) nbt, jn r pɜ jrj ‹ ḥɜm› ḥmt šfdw m jrt n ḫrp srqt. wt.f sw ḥr šʿy n dšrt. wt ḥr mw r hrw 4.

Another remedy[1] for removing[2] the venom of every male snake (and) of every female snake,

(which) was brought to the compiler of the book of the (healing) craft[3], for use by the Controller of Serqet[4]. He puts a poultice on him (lit. he bandages him) with sand of the desert. The dressing is kept damp (lit. with water)[5] for four days.

7.2.10.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.10.2 Note 2

This word  seems incorrect, and, as Sauneron (1989:65) points out, appears to be an error by the scribe. An analogy with the line  in Paragraph 39 of the *Brooklyn Papyrus* suggests that the word should be  – (*šd* – to remove).

7.2.10.3 Note 3

The word *ḥɜm* with the spelling of  does not appear in the dictionaries. Sauneron (1989:65) says that this word is unknown and suggests that it may have been intended to be *ḥmt*, meaning 'craft' (Gardiner 1959:518). The sign  (V12 in Gardiner 1957:523) is most likely an abbreviated writing for the word *šfdw* (papyrus roll) and in this case it means the compilation that makes up the *Brooklyn Papyrus*.

7.2.10.4 Note 4

Aufrère (2012:227) notes that there is an interesting resonance between the first few lines of this paragraph and the work of a person named Ouahibrê who draws on the text of certain lines of the magical texts on the *statue base of Djedhor-the-Saviour*[159] as follows: *jn-r bɜ.w-rᶜ m kɜ.t nb n ḫrp šrqt, rs ᶜnḫ rmṯ nb ᶜwtnb jm.sn m-ᶜ mtwt nt ḥf nb ḥfɜt nbt ḏdft nb ḥr jr mr jb n pɜ nb ntrw*. (a sacred book comprised of all kinds of works of the Controller of Serqet, intended to revive all people, all animals, (and) to save them from the effects of venom of every male snake, every, female snake, (and) every reptile, and which is the desire of the heart of the Lord of the Gods.

[159] Djedhor-the-Saviour probably lived during the reign of pharaoh Nectanabo II (360–343 BCE) and died sometime under the reign of Macedonian king Philippe Arrhidée (323–317 BCE) (Aufrère 2012:227; Sherman 1981:99). The statue (OI 10589) is made of a black polished stone and is in Chicago's Oriental Institute Museum. It dates to the Early Ptolemaic period, around 315 BCE, accession number 241 (Sherman 1981:82).

Figure 51: The statue base of Djedhor-the-saviour[160]

The *statue base of Djedhor-the-saviour* (see Figure 51 above) is covered with magical inscriptions which are intended to protect people from the bites of poisonous creatures (Sherman 1981:83). An extract from the text inscribed on the base of this statue is as follows:

> … one who delighted in the heart of everyone; who carried out rituals for this in his city in order to save them from the poison of every male and female viper and every kind of snake; who provided sustenance for those in the necropolis in order to make live those who were dead as a result and to save them from the poison of all snakes which bite;…

7.2.10.5 Note 5

The bite victim is covered in a poultice of desert sand which must be kept in place with bandages. The bandages are kept wet to keep the soil moist.

7.2.11 Paragraph 44b

Brooklyn Papyrus, page 3, line 8

ḏbꜣ m dmḏ ḫr.f sw ḥr dbw nt dgm r hrw 4.

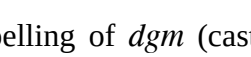
Replace all of it (lit. ‘it in total’) with leaves[1] of the castor oil plant[2, 3] (ricin) for four days.

[160] Photograph downloaded from the University of Chicago’s Oriental Institute: https://oi-idb.uchicago.edu/id/67fabd4b-2d98-4cd7-afec-007a26e9cedf. (Accessed 10th July 2020).

7.2.11.1 Note 1

Sauneron (1989:65) says the word *dbw* with this orthography is not known in medical texts. It is not in the dictionaries either. He believes that it is a form of the word *ḏbɜw*. One finds this word *ḏbɜw* in Faulkner (1986:321) with a possible meaning of a 'mat of leaves', and in Hannig (2006:1078) and Erman & Grapow (vol. 5, 1931:562) with a possible meaning of *blatter* (leaves), or *laub* (foliage). In Paragraph 72d (7.2.89) the word *gɜbw* (leaves) is used where leaves of the castor oil plant (*Ricinis communis*) are used in the treatment.

7.2.11.2 Note 2

The spelling of *dgm* (castor oil plant – *Ricinis communis*) as  is irregular here. Examples of spellings of this word in Von Deines & Grapow (1959:583), Hannig (2006:1062) and Erman & Grapow (vol. 5, 1931:500) does not include the sign , and uses  or  instead. This uncommon spelling for *dgm,* is used consistently in the *Brooklyn Papyrus*.

7.2.11.3 Note 3

The castor oil plant was widespread in the ancient Near East, and seeds found in a Predynastic Badarian grave indicate that the plant was used by the ancient Egyptians from a very early date (Serpico & Whyte 2000:391).

Figure 52: Castor oil plant (*Ricinis communis*)[161]

[161] Photograph of the castor oil plant: 'Santiago Oaks to Irvine Regional Park (short loop)' by colleengreen is licensed under Creative Commons license CC BY-NC-SA 2.0.

According to Nunn (2002:216), ricin (a toxin from the seeds of the castor oil plant) is a very powerful purgative, and in external applications it acts as a demulcent. In the *Brooklyn Papyrus*, the castor oil plant is only ever used as a wound treatment.

According to Dioscorides, the leaves pounded with polenta and / or vinegar were used to alleviate swellings (Osbaldeston & Wood 2000:724). The seeds of the castor oil plant contain ricin which is poisonous and has the potential to be fatal (Manniche 1989:142). The ancient Egyptians used oil from the seeds as a lamp oil and also for anointing the body. The fruit was believed to cure stomach illnesses and help hair to grow. Oil aided in the relief of skin disease and was also used as a purgative and an emetic (Manniche 1989:143).

7.2.12 Paragraph 44c

Brooklyn Papyrus, page 3, lines 8 to 9

wt.f sw ḥr ꜥɜg(t) nt ꜥɜ snwḫ ḥr b(ɜ)q, r hrw 4.

He puts a dressing on him (lit. he bandages him) with donkey hoof[1], boiled in moringa oil, for four days[2].

7.2.12.1 Note 1

It is unclear when donkeys were first domesticated in ancient Egypt, but they were attested by the First Dynasty (Darby *et al* 1977:235). Donkey hair was knotted into amulets, which, say Darby *et al* (1977:236) indicates its magical status, and their fat, liver, blood, gonads and bone marrow were all used in medical treatments. In the *Brooklyn Papyrus*, broiled donkey hoof and dried excrement are both used in wound treatments.

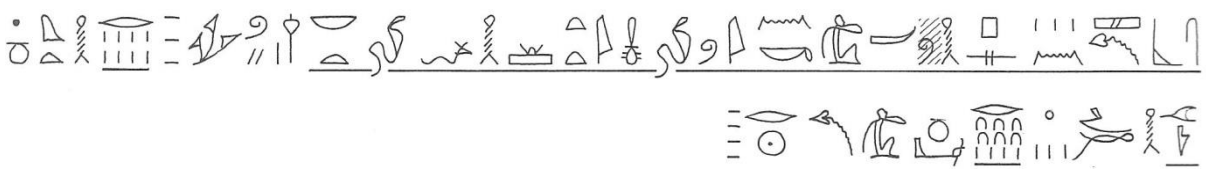
7.2.12.2 Note 2

This sentence appears a little ambiguous but it is more likely that it means the treatment is for four days, rather than the donkey hoof being cooked for four days. It appears that Paragraphs 44a, b and c are all part of the same treatment regime, being a series of poultices starting with

desert sand, followed by castor oil plant leaves and concluding with donkey hoof in moringa oil. This is a twelve-day treatment, in total.

7.2.13 Paragraph 45a

Brooklyn Papyrus, page 3, line 9



sbš n psḥ nkj mjtt ḫf(ɜw) nbt: ḥḏw: $^{1}/_{8}$, *ḥ(n)qt:* $^{1}/_{16}$ + $^{1}/_{64}$, *ḥmɜ(t) mḥ(t):* $^{1}/_{64}$. *ʿtḥ, swr, qʿ, r hrw 4*.

An emetic (lit. causing vomiting) for the bite of the neki snake[1] and likewise, (that of) every snake: onion[2]: $^{1}/_{8}$, beer: $^{1}/_{16}$ + $^{1}/_{64}$, salt of the north[3]: $^{1}/_{64}$. Filter, drink and vomit, for four days.

7.2.13.1 Note 1

Sauneron (1989:66) translates the name of this snake, neki, as *cobra à col noir*, in other words, the black-necked spitting cobra (*Naja nigricollis*) (see 6.4.5 for the possible identity of the neki snake). However, it is probably better to leave the Egyptian name 'neki' in the translation as one cannot be one hundred per cent certain of its identity, although it is highly likely that the snake neki described in Paragraph 25 of the *Brooklyn Papyrus* (see 5.2.12) is the *Naja nigricollis*.

7.2.13.2 Note 2

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.13.3 Note 3

The ingredient *ḥmɜt mḥt* which Sauneron (1989:66) translates as *sel du Nord* (salt of the north), is also known as *sel du Delta* (salt of the Delta) (see Lalanne & Métra 2017:246). Salt is one of the most frequently used ingredients in the *Brooklyn Papyrus* treatments, especially

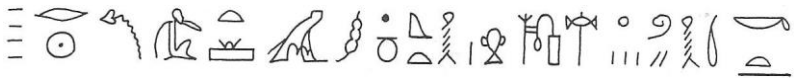
the form *ḥmɜt mḥt*. This salt is most likely from the delta region, which was in the north, and where, as Nunn (2002:147) explains, it could have been evaporated from sea water.

According to Darby *et al* (1977:447), Plutarch said that the use of salt from the sea was not allowed by Egyptian priests because it was associated with Seth, and it also had a reputation of being aphrodisiac, as well as being impure (Harris 1961:189). However, in contradiction to this, according to Herodotus, sea salt appears to have been used in some religious ceremonies. Salt from sources other than the sea seemed to be quite acceptable, as Arrian recounts that salt from the Siwa Oasis was collected and used as a gift to the Pharaoh. This Siwa salt could be used in sacrifices as it was believed to be purer than salt from the sea (Darby *et al* 1977:447–448).

In the *Brooklyn Papyrus* treatments, salt would be a very useful ingredient when used externally for wound treatments in helping to reduce swelling and combat infection. This is because of its excellent osmotic properties and its ability, therefore, to draw water (Nunn 2002:145).

7.2.14 Paragraph 45b

Brooklyn Papyrus, page 3, line 9



kt: tḥwy, nḏ snᶜᶜ ḥr ḥ(n)qt nḏmt. swr qᶜ, r hrw 4.

Another (remedy): peas[1], crushed finely in sweet beer[2]. (For) drinking (and) vomiting[3], for four days.

7.2.14.1 Note 1

Peas (*Pisum* sativum) were cultivated in ancient Egypt from the Twelfth Dynasty onwards (Darby *et al* 1977:692; Loret 1892:92). They were often used under bandages to combat tumours or deal with burns; they could be mixed with other ingredients to halt vaginal bleeding or taken internally to calm stomach problems (Manniche 1989:136–137). Estes

(2004:153) says that peas were used mainly in poultices for skin disorders and also for problems of musculo-skeletal origin.

Figure 53: Dried pea seeds (*Pisum sativum*)[162]

In the *Brooklyn Papyrus*, peas (see Figure 53 above) were used in wound treatments and also in emetic preparations.

7.2.14.2 Note 2

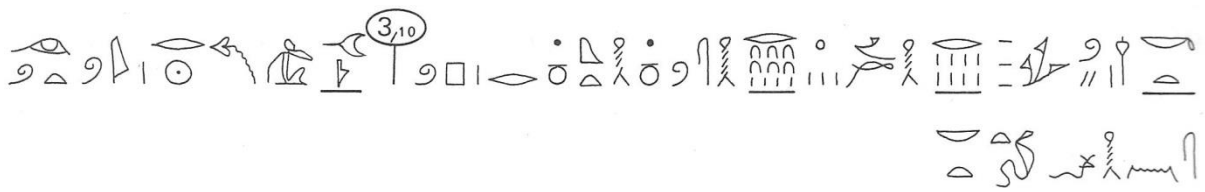
See 7.2.7.6 for the note on sweet beer (*ḥnqt nḏmt*) in Paragraph 43a.

7.2.14.3 Note 3

The sign  is used consistently in the *Brooklyn Papyrus* as an abbreviated spelling for the verb *qʿ/qɜʿ* rather than the verb *bšj* – see Paragraph 40 where the word is spelled out in full:  .

7.2.15 Paragraph 45c

Brooklyn Papyrus, page 3, lines 9 to 10



[162] Photograph of dried pea seeds: 'DSCN1997B' by skrubtudse is licenced under Creative Commons license CC BY-NA-SA 2.0.

kt: ḥḏw: $^{1}/_{8}$*, ḥmɜ(t) mḥ(t):* $^{1}/_{64}$*, ḥs(ɜ) ḥ(n)qt r-pw:* $^{1}/_{16} + {}^{1}/_{64}$*. swr qʿ, r hrw. jw jr.tw.s n ḫf(ɜ)t nbt*.

Another (remedy): onion[1]: $^{1}/_{8}$, salt of the north[2]: $^{1}/_{64}$, fermented mucilage / liquid[3] or beer: $^{1}/_{16} + {}^{1}/_{64}$. (For) drinking (and) vomiting, for a day. The remedy (lit. it) is to be prepared for (the bite of) any female snake.

7.2.15.1 Note 1

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.15.2 Note 2

See 7.2.13.2 for note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

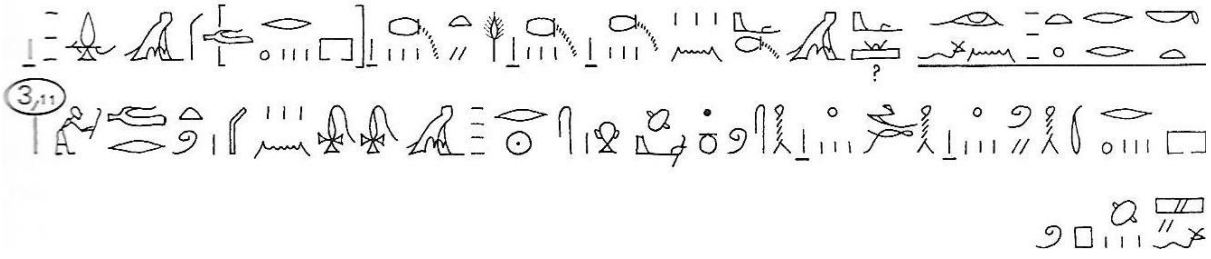
7.2.15.3 Note 3

This word *ḥsɜ* appears to be 'fermented mucilage'[163] (Von Deines & Grapow 1959:368). Fermented mucilage could be produced from pieces of bread or grain soaking in water (Von Deines & Grapow 1959:364). Barley, used for making beer, would produce a slime, or mucilage, which would ferment as there was no refrigeration.

Hannig (2006:602) gives a possible meaning of *pflanzenschleim* (mucilage), for the word *ḥsɜ*. Sometimes this ingredient is called *ḥsɜ n ʿwɜjt* (mucilage of fermentation), and this name is also used in the *Brooklyn Papyrus*. These products, *ḥsɜ* and *ḥsɜ n ʿwɜjt*, are most likely by-products of the brewing or bread-making industries.

7.2.16 Paragraph 45d

Brooklyn Papyrus, page 3, lines 10 to 11



[163] Mucilage comes from the roots, shoots, leaves, stems, flowers or seeds of plants (Newman & Serpico 2000:476).

kt rrt jr n.f: ʿmʿʿ n jt: 1, *jt:* 1, *btj:* 1, *prt dgm:* 1, *prt tḥwy:* 1, *ḥmɜ*(*t*) *mḥ*(*t*)*:* 1, *ḥs*(*ɜ*). *wt ḥr.s r hrw* 4 *m srf n ḏbʿ tw. dr šfwt pw.*

Another remedy[1], make for him: grains[2] of barley: 1, barley[3]: 1, emmer wheat[4]: 1, seed of castor oil plant: 1, seed of pea plant: 1, salt of the north[5]: 1, fermented mucilage. Apply a dressing (lit. bandage) with it[6] for four days at the warmth of one's finger.
It is to drive out swelling[7].

7.2.16.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.16.2 Note 2

Sauneron (1989:67) translates *ʿmʿʿ* as *balle (?) d'orge* referring to the *pellicule qui entoure le grain* (the husk surrounding the grain). Leitz (1999:96) provides a possible meaning for *ʿmʿʿ* as 'part of a grain', as do Erman & Grapow (vol. 1, 1926:186) with *teil des getreides* (parts of grains). In Hannig (2006:153) one finds *Getreide korn* (types of grains), as a possible meaning.

In Von Deines & Grapow (1959:91–92) one reads that *ʿmʿʿ* was used medicinally as an ingredient that could be chewed, as an ingredient in salves, or as part of a poultice under a bandage. Furthermore, they say that *ʿmʿʿ*, as already mentioned above, is a part of wheat or barley. As this remedy is a poultice and used under a bandage, it is quite feasible that the husks were used, along with the grains of wheat and barley and the seeds of peas and the castor oil plant.

7.2.16.3 Note 3

The earliest mention of barley (*Hordeum vulgare*) (see Figure 54 below) in literature is from the First Dynasty. The grain could be described as 'barley of Upper Egypt' or 'barley of Lower Egypt' (Darby *et al* 1977:481). It is possible that the classification of barley by colour (white or red barley) may in fact refer to the colour of the royal crown and not the actual grain colour. Therefore red barley would refer to barley from Upper Egypt, and white barley would refer to barley from Lower Egypt (Darby *et al* 1977:483). Barley symbolised

resurrection, and, accordingly, necklaces of barley were often placed on mummies (Darby *et al* 1977:483).

Figure 54: Barley (*Horduem vulgare*)[164]

The primary use for barley during ancient Egyptian times was for beer making (Murray 2000a:512), but it could also be used for making bread (Manniche 1989:107). Beer is often used in the *Brooklyn Papyrus* recipes as a carrier for remedies that needed to be swallowed.

Barley was widely used in medicine in different forms which, according to Darby *et* al (1977:484), could be the grain itself, a meal or powdered form, or roasted or fermented. Even barley water could be used. General medicinal uses include an anthelminthic for roundworm, a laxative, and a plaster to help set broken bones by mixing a paste incorporating barley flour. According to Estes (2004:140), barley's chief medicinal use was for skin disorders and the dry grains or a paste was used.

In the *Brooklyn Papyrus* treatments, barley can be seen to be used in a variety of forms. Barley flour and the husks or bran were used exclusively for wound treatments. Liquid from barley mash (perhaps barley water) is used in an emetic and also in a wound treatment. Mucilage of barley is used in treatments to be ingested and also in a wound treatment, while old bread grain is used in an ingestible treatment.

Barley water is cited by Dioscorides as being used for irritations and ulcers, while a mash made of boiled barley, figs, honey and water is helpful in relieving swellings and inflammation (Osbaldeston & Wood 2000:232).

[164] Photograph of barley (*Horduem vulgare*): 'P1090150-24x15-Hordeum_vulgare' by MAMM Miguel Angel is licensed under Creative Commons license CC BY 2.0.

7.2.16.4 Note 4

Emmer wheat (*Triticum diccocum, Triticum turgidum*) (see Figure 55 below) was cultivated in ancient Egypt from at least as early as the Sixth millennium BCE, according to Murray (2000a:512). It was the main cereal crop of Lower Egypt (Täckholm & Täckholm 1941:284). The names of *bdt* and *mymy* provided by Nunn (2000:152) concur with the Egyptian names *bdt* and *mjmj* used in the *Brooklyn Papyrus*. Emmer is used three times in the *Brooklyn Papyrus*: in one treatment to be ingested and in two wound treatments.

Figure 55: Emmer wheat (*Triticum* sp.)[165]

Emmer, an important ancient Egyptian crop, was mainly used in bread making, but could also be used for making beer. Along with barley, emmer wheat was one of the most important cereal crops in ancient Egypt, and it was used medicinally in dressings or poultices, in a recipe to induce labour and to make hair grow, among other things (Manniche 1989:152).

7.2.16.5 Note 5

See 7.2.13.2 for note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

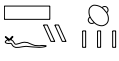
7.2.16.6 Note 6

Although there is no instruction, one presumes that the grains were ground before being mixed with the fermented liquid. No quantity of this fermented liquid is specified but it

[165] Photograph of Emmer wheat: '*Triticum* sp.' by clisenberg is licensed under Creative Commons license CC BY-NC-SA 2.0.

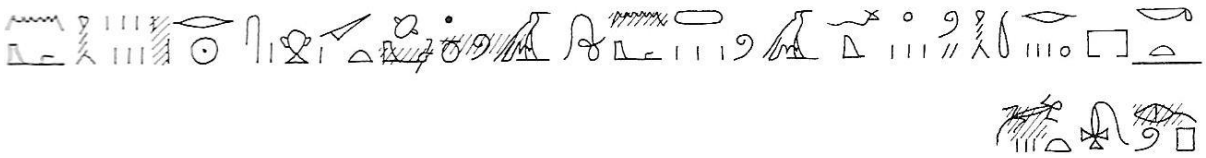
would need to be just enough to bring the dry ingredients together and provide a medium in which they could be heated.

7.2.16.7 Note 7

The spelling of the noun *šfwt* as  in this paragraph is unusual. There are no examples of this particular spelling in the dictionaries.

7.2.17 Paragraph 45e

Brooklyn Papyrus, page 3, line 11



kt: prt tḫwy, fqɜw n ʿwɜ(yt). wt dmt ḥr.s r hrw 7, ḥnʿ kɜpw ʿšɜ.

Another (remedy): seed of pea plants, cakes of fermentation / mucilage[1]. Dress the bite wound with it for seven days, together with numerous fumigations[2].

7.2.17.1 Note 1

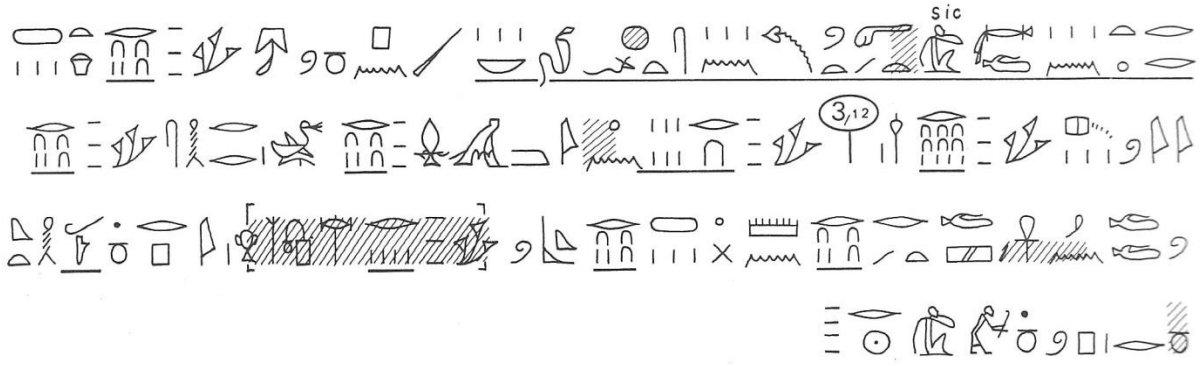
Sauneron (1989:67) translates *fqɜw n ʿwɜyt* as *gateaux fermentés* (fermented cakes). Faulkner (1986:40) gives a possible meaning for *ʿwɜyt* as ‘fermented drink’, and Von Deines & Grapow (1959:83) say *ʿwɜyt* is ‘fermented mucilage’. The word *fqɜw* refers to something solid, being the cake. Perhaps *fqɜw n ʿwɜyt* is the residual lees or sediment that has been formed into cakes after fermentation has taken place and the liquid poured off. It could even be fermenting grain made into cakes.

7.2.17.2 Note 2

No quantities have been specified for the ingredients in this treatment recipe.

7.2.18 Paragraph 46a

Brooklyn Papyrus, page 3, lines 11 to 12



rrt n šdt mtwt n sḫtf nb: sd pnw: $^{1}/_{32}$*, ty jt js:* $^{1}/_{64}$*, ḥḏw:* $^{1}/_{16}$*,* [*?*] *n jm(ɜ):* $^{1}/_{32}$*, ṯɜrrḫs:* $^{1}/_{32}$*, wdd n ꜥnḫt dšrt:* $^{1}/_{64}$*, mn qmyt:* $^{1}/_{32}$*, qbw* [$^{1}/_{4}$ *nḏ snꜥ*] *ḥr jrp* $^{1}/_{32}$ + $^{1}/_{64}$ *h(n)qt r-pw. ꜥtḫ. swr r hrw 4.*

Treatment[1] to remove[2] the venom of every sekhtef snake[3]: tail-of-the-mouse[4] plant: $^{1}/_{32}$, grain (lit. fruit) of old barley: $^{1}/_{64}$, onion[5]: $^{1}/_{16}$, [(some part)][6] of the meru[7] tree: $^{1}/_{32}$, *tjarrehes*[8] (plant): $^{1}/_{32}$, gall of a red goat: $^{1}/_{64}$, *men* resin[9]: $^{1}/_{32}$, *qebu* (plant)[10]: [– $^{1}/_{4}$. Grind smoothly] in wine or beer: $^{1}/_{32}$ + $^{1}/_{64}$. Filter. (For) drinking, for four days.

7.2.18.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.18.2 Note 2

The incorrect determinative has been used with the word *šdt*. It should be  (A24 in Gardiner 1957:444) instead.

7.2.18.3 Note 3

The sekhtefs of Seth and Horus are mentioned earlier in the extant portion of the papyrus in Paragraphs 20 and 21.

7.2.18.4 Note 4

The plant named *sd pnw* (tail-of-the-mouse) also appears in the *Ebers Papyrus* (Ebers 160, plate 33, line 11) as a medicinal ingredient (Lalanne & Métra 2017:70–71). The species of plant is unidentified by Sauneron and also Lalanne & Métra. Both Manniche (1989:73) and Von Deines & Grapow (1959:470) indicate that *sd pnw* appears only once in the Egyptian

medical texts, which is in Ebers 160. However, there are numerous instructions for the use of *sd pnw* in the treatment section of the *Brooklyn Papyrus*. Admittedly, the contents of *Brooklyn Papyrus* had not been revealed when Von Deines & Grapow's work was published in 1959.

In Hannig (2006:854) one finds a possible identification for *sd pnw* of *malvenar* or *eibisch* (hibiscus). Hannig (2006:854) gives the botanical name for this plant as *Alcea rosea*. It must be noted that *Alcea rosea* is not hibiscus, but a marshmallow plant. The hibiscus, like the marshmallow plant, is part of the *Malvaceae* family. It is also important to note that *Alcea* is synonymous with *Althea.* Von Deines & Grapow (1959:470) provide a botanical name of *Alcea ficifolia* for the marshmallow plant.

Althea rosea is native to China and was most likely cultivated in Europe from around the 15th century CE[166], while the marshmallow plant known as *Althea officinalis* (see Figure 56 below) is native to North Africa and eastern Europe (Encyclopaedia Britannica online). The plant *sd pnw* is more likely, therefore, to be *Althea officinalis* than *Althea rosea*.

Figure 56: Marshmallow plant (*Althea officinalis*)[167]

Althea officinalis is, according to Manniche (1989:73), the marshmallow plant found in Egypt. However, she notes that the *Althea ficifolia* was found in garlands on the mummies of Amosis and Amenhophis I. The Greek name for the marshmallow plant is οὐρα μυός, being 'mouse tail', and this may well be the same as the Egyptian *sd pnw*.

According to Dioscorides, the marshmallow, boiled with honey and water or wine, was good for wounds, swellings, bruises and supperations, amongst other ailments. The seeds, or the

[166] http://flora.huh.harvard.edu/china/ (accessed 18th December 2019).
[167] Photograph of the marshmallow plant: 'File:Althea officinalis Heemst.jpg' by Agnes Monkelbaan is licensed under Creative Commons license CC BY-SA 4.0.

leaves mixed with oil, could be rubbed onto poisonous bites to help alleviate pain (Osbaldeston & Wood 2000:535–536). Marshmallow root in particular is known for its mucilage, which is a very important exudite used to sooth irritated skin or gastrointestinal tracts, skin lesions and bruising (Pengelly 2004:124–125).

7.2.18.5 Note 5

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.18.6 Note 6

Sauneron (1989:68) suggests that this missing word is 'pulp' of the *jmꜣ* (ima) tree. With lack of a legible text, it is difficult to see how he arrives at this conclusion.

7.2.18.7 Note 7

According to Baum (1988:191), it is a distinct possibility that the *jmꜣ* tree is the *Maerua crassifolia,* a tree or shrub whose leaves, edible fruit and seeds are used in medicine.

Figure 57: Meru tree (*Maerua crassifolia*)[168]

Both Hannig (2006:79) and Lalanne & Métra (2017:231) give *Maerua crassifolia* as the identity of the *jmꜣ* tree, which is known as *meru* in Yemen where it is common (see Figure 57 above). Aside from being found in Arabia, *Maerua crassifolia* is found in Israel and eastwards to Pakistan; on the African continent it is found in East Africa, Eritrea, Ethiopia and westwards to Senegal[169].

7.2.18.8 Note 8

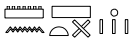
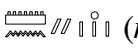
The *tjarrehes* plant is unidentified.

[168] Drawing of the Meru tree (*Maerua crassifolia*) by Wendy Golding.
[169] https://plants.jstor.org/compilation/Maerua.crassifolia (accessed 16th December 2019).

7.2.18.9 Note 9

This group of signs  has been translated as '*mn* resin' by Sauneron (1989:68). The word *mn* is found again in Paragraph 46e, so it probably is not a spelling error by the scribe. The word *mn* as a type of resin is not found in Von Deines & Westendorf (1961) or in Von Deines & Grapow (1959). Both these works comprehensively cover words used in the most well-known medical papyri.

The following words with similar spellings have been considered in an attempt to arrive at a suitable meaning:

- The word  (*mnšt*), which has a meaning of 'ochre'. This particular spelling is found in the *Leiden Papyrus* (recto XXVI, 10). Von Deines & Grapow (1959:247) have *mnšt* as 'red ochre', while in Faulkner (1986:110) it is given as possibly being 'yellow ochre'. In Hannig (2006:362) the word *mnšt* is given a general meaning of *Ocker* (ochre) and then *viell roter* (often red), and the sign  is given as a determinative for *mnšt*.
- The word *mnyt* is found in the *Ebers Papyrus* (Ebers 325, plate 54, line 19) in Lalanne & Métra (2017:112–113). The spelling here is  (*mnyt*), which they refer to as 'a resin'. This word appears in Hannig (2006:357) as *mnj* with a possible, but uncertain, meaning of *rötel* (red chalk)[170], while he gives the word  (*mnjt*) as 'little pearls of *menit*' or 'resin beads' or 'balls'.

Under the entry of *mw* (water) in Von Deines & Grapow (1959:225–233) is a section titled *Saft von Pflanzen* (sap of plants) (Von Deines & Grapow 1959:229–230), where the saps of various plants are listed, for example: *mw nw jt; mw nw mjmj; mw nw ḏ3rt*. Interestingly, in Hannig (2006:925–926) under the word *qmyt* in the usual list of common phrases using the relevant word, one finds the phrse *mw nw qmyt* with the meanings *Gummiwasser* (sap) and *wäßrige Gummilösung* (watery gum/resin solution).

This phrase *mw nw qmyt* appears in the *Ebers Papyrus*:  (*mw n*(*w*) *qmyt*) in Ebers 485 (68[4]), which Lalanne & Métra (2017:140) translate as *l'eau de gomme* (water / liquid of resin / gum). Two further examples occur with the spelling of in Ebers 583 (75[1]) and Ebers 871 (107[20]), to which Lalanne & Métra (2017:154; 219) give the

[170] https://www.wordreference.com/deen/Rötel (accessed online 30th December 2019).

same translation. For lack of any other evidence at this point for the proper identity of *mn qmyt*, one must leave the translation as *men* resin, as Sauneron has done.

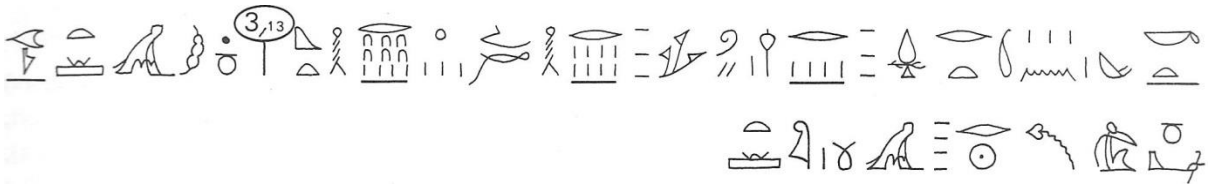
Gum, which was widely available to the ancient Egyptians, came from the *Vachellia* and *Senegalia* species (previously *Acacia*) and *Astralagus* species (Newman & Serpico 2000:476). One does not encounter the *Astralagus* species in the *Brooklyn Papyrus* treatments, but there is medicinal use of the *Vachellia* and *Senegalia* species. Some gums are soluble in water, while others are not. Gum from the *Acacia* species is water soluble. The word *qmyt* appears to be a term that refers to gums or resins in general, and it appears in two treatments in the *Brooklyn Papyrus*, one for ingesting and one for wound treatments. Loret (1982:84) says that *qami* was a gum that came from the *Vachellia nilotica / Acacia nilotia* (Nile acacia) and this word is remarkably similar to *qmyt*.

7.2.18.10 Note 10

The plant *qbw* is an unidentified species. One may presume that it is a plant which produces a noticeable amount of sap as in Hannig (2006:921) there is a reference to 'sap (*mw nw*) of the *Qebu* plant'. This plant also produces seed or fruit, which is specified in the treatment in Paragraph 46j (see 7.2.26).This plant is mentioned in the *Ebers Papyrus* and is used as follows: as a chewable remedy for treating tooth problems (Ebers 749), and with a bandage (Ebers 487). Its sap is used in a solution for treating eye complaints (Ebers 415), in an ointment (Ebers 720), and to treat oedema (Chester Beatty V, 13b) (Von Deines & Grapow 1959:515–516). Here, in the *Brooklyn Papyrus, qbw* is an ingredient in the remedy that is ingested.

7.2.19 Paragraph 46b

Brooklyn Papyrus, page 3, lines 12 to 13



kt: ḏrḏw n trt: $^{1}/_{4}$*, ḥḏw:* $^{1}/_{8}$*, ḥmɜ(t) mḥ(t):* $^{1}/_{64}$*, ḥ(n)qt nḏmt:* $^{1}/_{16} + {}^{1}/_{64}$*. ʿtḫ. swr. qʿ, r hrw 4. m šs mɜʿt.*

Another (remedy): leaves of the willow tree: $^{1}/_{4}$, onion[1]: $^{1}/_{8,}$ salt of the north[2]: $^{1}/_{64}$, sweet beer[3]: $^{1}/_{16}$ + $^{1}/_{64}$. Filter. (For) drinking (and) vomiting, for four days. (It is) truly excellent.

7.2.19.1 Note 1

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.19.2 Note 2

See 7.2.13.2 for note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

7.2.19.3 Note 3

See 7.2.7.6 for the note on sweet beer (*ḥnqt nḏmt*) in Paragraph 43a.

7.2.20 Paragraph 46c

Brooklyn Papyrus, page 3, line 13

kt: ḥḏw, ḫt n ḥf(*ɜw*). *wgt*. *nft n fnd n wḫd dmt*.

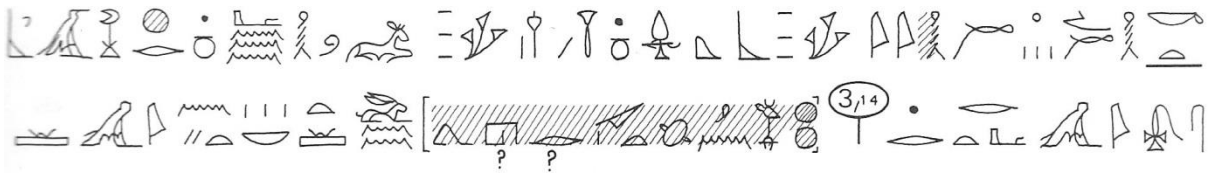
Another (remedy): onion[1], wood-of-the-snake. To be chewed. (It is) breath for the nose of the one suffering the bite.

7.2.21.1 Note 1

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.21 Paragraph 46d

Brooklyn Papyrus, page 3, lines 13 to 14



kt: ḥmɜ(t) mḥ(t), mḥy, b(ɜ)q wɜḏ, ḥḏw. jwḥ ḫr ḫɜb(ɜ)s jm. rdjt r [*ḫḥ wḫd dmt, r h*(*ɜt*)] *wnnt nb ntj jm*

Another (remedy): salt of the north[1], flax[2], fresh moringa oil, onion[3]. Soak (lit.moisten) a lampwick[4] in it. To be placed on [the throat[5] of the one suffering the bite, to expel (lit.let fall)] all which is in there.

7.2.21.1 Note 1

See 7.2.13.2 for note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

7.2.21.2 Note 2

In his translation, Sauneron (1989:69) queries whether or not *mḥy* is flax, which it does appear to be. According to Hannig (2006:374) and Faulkner (1986:114) *mḥy* is flax (*Linum usitatissimum*). The Egyptian names given by Manniche and Loret are similar: Loret (1892:107) refers to *mahi* as *Linum humile* while Manniche (1989:116) refers to *mḥy* as *Linum usitatissimum*.

Flax was not endemic to ancient Egypt, possibly being imported from the Near East somewhere between 6000–5000 BCE (Serpico & Whyte 2000:396), but its use in Egypt dates back as far as the prehistoric period (Vogelsang-Eastwood 2000:268). The main use of flax in ancient Egyptian times was for linen and linseed oil, and Loret (1892:107) says that although flax was often mentioned in the medical papyri, it was commonly used for spinning and weaving. Medicinally, the seeds were used in a poultice for pain relief and to aid healing of wounds (Manniche 1989:116). In the *Brooklyn Papyrus* flax is used as a wound treatment.

7.2.21.3 Note 3

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.21.4 Note 4

Sauneron (1989:89) comments on this word *ḫɜbɜs*, saying that it is not used here in the regular sense of the word which usually has possible meanings of ‘light’ or ‘lamp’ (Hannig 2006:626). Logically, one will not place a lamp on the person’s throat. Rather, it will be the wick, which is most likely a strip of fabric that has been soaked in the remedy and this is

possibly the meaning of the word *ḫɜbɜs* intended here. According to Vogelsang-Eastwood (2000:291), lamp wicks were made from a length of twisted cloth or fibres.

7.2.21.5 Note 5

The word *ḫḫ* could refer to either the neck or throat of the person being treated. However, one would think that the throat is meant here, as this particular recipe is another treatment in the collection of Paragraph 46 where 46c is intended to enable breathing and open the airways.

7.2.22 Paragraph 46e

Brooklyn Papyrus, page 3, lines 14 to 15

kt: ꜥmꜥꜥ: $^{1}/_{32}$*, prt jnjw:* $^{1}/_{8}$*, mn qmyt:* $^{1}/_{32}$*, wdd n ꜥnḫ(t):* $^{1}/_{32}$*, ḏꜥb(t) nt trt, ks ḫt:* $^{1}/_{64.}$ *nḏ snꜥꜥ* (*mj*) *swḥwt m jwššš. nḏ snꜥꜥ ḥr jrp:* $^{1}/_{32}$ + $^{1}/_{64}$*, ḥ(n)qt, r-pw. ꜥtḫ swr jn wḫd dmt.*

Another (remedy): grain[1]: $^{1}/_{32}$, fruit (or seed) of the *jnjw* plant[2]: $^{1/}{}_{8,}$ *men* resin[3]: $^{1}/_{32}$, gall of a goat: $^{1}/_{32,}$ charcoal of willow[4], or a plaited basket and fire (?)[5]. Crush finely (like) eggshell[6] into a gruel. Grind smoothly into wine: $^{1}/_{32}$ + $^{1}/_{64}$ (or) beer, whichever. Filter. (For) drinking by the one suffering the bite.

7.2.22.1 Note 1

Here Sauneron (1989:70) translates *ꜥmꜥꜥ* as *chaume*, meaning ‘stubble’ or ‘stalks of grain’. Hannig (2006:153) gives a meaning of ‘types of grain’. This word has already been discussed in 7.2.16.2, for Paragraph 45d, where *ꜥmꜥꜥ* was specifically linked to barley. In this paragraph the type of grain is not specified.

7.2.22.2 Note 2

The plant *jnjw* is an unknown species. A similar name, *jnyt*, is a plant appearing in Ebers 725

(88[2]). This is also an unknown plant, which is mixed with bread dough and salt and applied to the body (Lalanne & Métra 2017:181). See also 7.2.50.2.

7.2.22.3 Note 3

This ingredient *mn qmyt* appears in Paragraph 46a and was discussed in 7.2.18.8, note 8.

7.2.22.4 Note 4

The willow *Salix safsaf* (*S. subserrata, S. mucronata*) (see Figure 58 below) is found on the banks of the Nile, as well as on islands in the river (Gale *et al* 2000:344).

Figure 58: Willow (*Salix safsaf*)[171]

Willow leaves were used in funerary garlands, and the withies for basketry, and the wood, which is soft and non-splintering, was used for making small household items, boats, shields and chariots (Gale *et* al 2000:344). Estes (2004:143) says that the ancient Egyptians used charcoal to treat skin disorders.

7.2.22.5 Note 5

For the the word *ks*, Hannig (2006:959) refers one to *kbs*, a word to which he gives a possible meaning of *gewöhnlicher/geflochtener Getreidesack* (ordinary/plaited or twine grain sack). The product *ks* in this treatment is an alternative to willow charcoal, and so it is possible that the word *ks* may be a basket rather than a sack in this instance. Willow was used to make baskets (see 7.2.22.4 above) and a willow basket would suffice for this treatment if willow charcoal could not be found.

[171] Photograph of the willow (*Salix safsaf*) by Abu Shawka, 2010. Image released into public domain. Source: Wikimedia Commons.

7.2.22.6 Note 6

The signs  are an abbreviated spelling for the word *swḥt*, which can refer to an egg or to eggshell (Hannig 2006:735). It seems to be a strange word to be inserted between *snᶜᶜ* and *m,* unless one inserts the word *mj* (like), and considers that *nḏ snᶜᶜ* (*mj*) *swḥwt m jwšš* describes what is to be done with the charcoal. In other words, it is to be crushed smoothly into gruel like eggshell. There is no inclusion of this word by Sauneron in his translation or commentary. This phrase *nḏ snᶜᶜ* (*mj*) *swḥwt* also appears in Paragraphs 54d and 54f.

7.2.23 Paragraph 46f

Brooklyn Papyrus, page 3, line 15

kt: sd pnw rdyt: $^{1}/_{8}$. *nḏ snᶜᶜ ḥr jnp:* $^{1}/_{64} + {}^{1}/_{64}$. *swr jn ḫr*(*j*) *dmt*. *m šs mɜᶜ*(*t*)*, ḥḥ n sp*!

Another (remedy): tail-of-the-mouse plant[1]: $^{1}/_{8}$. Crush finely in wine: $^{1}/_{64} + {}^{1}/_{64}$. (For) drinking by the one who has the bite wound. It is truly excellent, a million times[2]!

7.2.23.1 Note 1

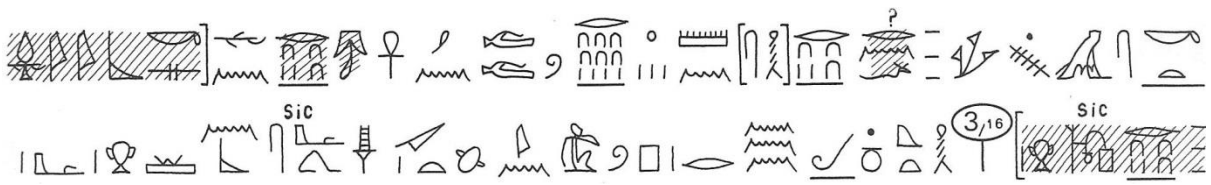
See 7.2.18.4 for the note on the tail-of-the-mouse plant (*sd pnw*) in Paragraph 46a.

7.2.23.2 Note 2

The phrase *m šs mɜᶜ ḥḥ n sp*, or *m šs ḥḥ n sp* is a standard one which occurs in several of the medical papyri (Von Deines & Westendorf 1962:631). Sauneron (1989:70) translates this as *c'est excellent, un million de fois* (it is excellent, a million times). The spelling of *ḥḥ* in this paragraph is unusual. However, Gardiner (1957:52, 463) explains that in 'group writing' the sign (F18 in Gardiner 1957:463) has the value of *ḥ*. In other words, a biliteral sign is used instead of a uniliteral sign which, in this case, would have been .

7.2.24 Paragraph 46g

Brooklyn Papyrus, page 3, lines 15 to 16



kt: sm(*w*) (*?*) *rn.f:* $^{1}/_{32}$, *ḥsmn:* $^{1}/_{64}$, *wdd n ꜥnḫ*(*t*)*:* $^{1}/_{32}$, *ḫt n ksby:* $^{1}/_{32}$, [*nḏ snꜥꜥ ḥr*] *ḥ*(*n*)*qt:* $^{1}/_{32}$, *mw, r-pw. swr jn wḫd dmt. ꜥḥꜥ*(*.f*) *snb ḥr ꜥ.*

Another (remedy): a plant, (?) its name (is) [1]: $^{1}/_{32}$, natron[2]: $^{1}/_{64}$, gall of a goat: $^{1}/_{32}$, wood of the *ksby* (*kesbet*)[3] tree: $^{1}/_{32}$. [Crush][4] smoothly in beer: $^{1}/_{32}$, or water, whichever. (For) drinking by the one suffering the bite. (He)[5] will get up and recover immediately.

7.2.24.1 Note 1

Sauneron (1989:71) translates *sm rnf* as *herbe-à-scorpion (?)* (scorpion plant[?]). He is uncertain of his translation and says that the remaining traces rather resemble *rnf* and that the word for 'scorpion' is *wḥꜥt*. His reason for translating this as *herbe-à-scorpion* may be based on a plant named *sm wḥꜥt* which appears in the *Turin Papyrus* (Von Deines & Grapow 1959:440–441), although there does not seem to be enough evidence to label the plant in this paragraph as *herbe-à-scorpion* with any conviction.

However, it is interesting to note that in the *Ebers Papyrus* (Ebers 294, 51[15]) is the following line: *sm snwt.t rn=s*, which Lalanne & Métra (2017:107) translate as *plant don't le nom est senoutet* (a plant whose name is *senoutet*). Therefore, Sauneron may be quite correct when he says that the traces resemble *rnf*. Based on analogy of the line in Ebers 294, this could be *rn.f* (its name). It is entirely possible, if one follows the formula *smw* x *rn.f*, that a word (represented by x) has been omitted by the scribe between *smw* and *rn.f* in this paragraph, where x is the name of the plant.

7.2.24.2 Note 2

Estes (2004:151) explains that natron (see Figure 59 below) is a mixture of sodium carbonate and sodium bicarbonate, and that it includes impurities such as salt and sodium sulphate.

Figure 59: Natron deposits[172]

Natron, a widely found mineral in Egypt that was used in the mummification process (Nunn 2002:145), appears frequently in the *Hearst Papyrus* in treatments for skin and gut disorders (Estes 2004:151), and was a substance generally used for purification (Harris 1961:195).

7.2.24.3 Note 3

Sauneron (1989:71) translates *ḫt n ksby* as *bois d'arbre kesbet* (wood of the *kesbet* tree), the identification of which was unknown at his time of working with the Papyrus. In Hannig (2006:960) one finds the word *ksbt*, referring to a tree which may be the *Avicenna marina* or *Vachellia tortilis / Acacia tortilis* (see Figure 60 below). The *ksbt* tree appears several times in the *Ebers Papyrus* (Ebers 16, 54, 57, 59, 72, 342, 721).

Figure 60: Umbrella thorn (*Vachellia tortilis*)[173]

In Ebers 342 *jmy n ksb.t* is used in the treatment, and, according to Lalanne & Métra (2017:117) this is *pulpe (de fruit)* (pulp [of the fruit] of the *kesbet* tree). The same part of the

[172] Photograph of natron depostis by Stefan Thüngen (2010). Image released into the public domain. No copyright.
[173] Photograph of the umbrella thorn (*Vachellis tortilis*) by Dinesh Valke (2018), licensed under Creative Commons license CC BY-SA 2.0.

plant is used in Ebers 721. Lalanne & Métra (2017:19) align this plant with *Vachellia tortilis / Acacia tortilis* based on Baum's proposed identification of *kesbet* as *Vachellia tortilis / Acacia tortilis* (Baum 1988:162).

7.2.24.4 Note 4

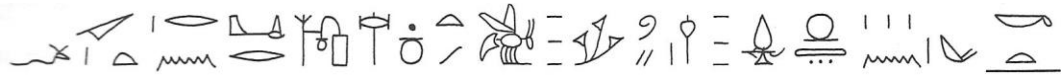
The sign  (*nḏ*) has been omitted before  (*snˁ*), as Sauneron (1989:71) points out.

7.2.24.5 Note 5

Sauneron (1989:71) is correct in saying that a suffix pronoun appears to be missing after *ˁḥˁ*. It should read *ˁḥˁ.f*, as it does in Paragraph 92.

7.2.25 Paragraph 46h

Brooklyn Papyrus, page 3, line 16



kt: ḏrḏw n šnḏt, ḥḏw, bjt. nḏ snˁ. dj r r n dmt.f.

Another (remedy): leaves of the Nile acacia[1], onions[2], honey. Crush smoothly. Apply (lit. place) on the opening (lit. mouth) of his bite wound.

7.2.25.1 Note 1

The tree *šnḏt* is identified as *Vachellia nilotica / Acacia nilotica* (Nile acacia – see Figure 61 below) in Faulkner (1986:270); Lalanne & Métra (2017:256); Hannig (2006:898); and Manniche (1989:65). As said in footnote 137, the African *Acacia* species have recently been renamed *Vachellia* and *Senegalia*. The *Acacia* species of approximately 1500 members is widespread throughout Africa, Australia, Asia and the Americas. In 2011 it was ruled at the 17th International Botanical Conference that the name *Acacia* would be reserved for the native Australian species only.[174]

[174] Dyer 2014 – https://doi.org/10.2989/20702620.2014.980090 (accessed online 9th April 2019). To avoid any confusion in this thesis, the original (Acacia) and new classicfications (*Vachellia* and *Senegalia*) will both be given as most literature related to botany in ancient Egypt is prior to the reclassification and refers to *Acacia*.

Figure 61: Nile acacia (*Vachellia nilotica*)[175]

There are many types of acacia trees, including *Vachellia nilotica/Acacia nilotica*, *Vachellia tortilis/Acacia tortillis* and *Vachellia seyal/Acacia seyal* found in hot desert climates, from Egypt to Jordan (Gale *et al* 2000:335). The tree which was called *šnḏt* by the ancient Egyptians refers to the Nile acacia (*Vachellia nilotica/Acacia nilotica*), which is commonly found throughout Egypt in the Nile Valley, the Western Desert inclusive of the oases, and the Sinai (Newman & Serpico 2000:478).

Manniche (1989:65) provides the modern Egyptian Arabic name as سنط (*sanṭ*) which seems to suggest that the name has been carried down from ancient Egyptian times. One learns from Loret (1892:84) that the Coptic names used to refer to the acacia were *shonte* and *shanti*.

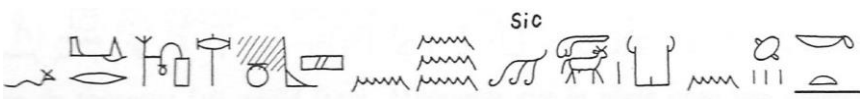
Medicinal uses include anthelminthic, cough relief, external applications for wound healing and ophthalmic remedies (Manniche 1989:66), treatment for sore limbs and wound healing (Estes 2004:139).

7.2.25.2 Note 2

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.26 Paragraph 46i

Brooklyn Papyrus, page 3, line 16



[175] Photograph of the Nile acacia (*Vachaellia nilotica*) by Franz Xaver (2019) is licensed under the Creative Commons license CC BY-SA 4.0.

kt: ḥs n kɜ (*km?*)*, mw n šb*(*t*)*. nḏ snᶜᶜ. dj r.f.*

Another (remedy): Droppings[1] of a (black?)[2] bull, water (or liquid) of barley mash[3]. Grind smoothly. Apply (it) to him[4].

7.2.26.1 Note 1

Animal excrement was a popular ingredient in treatments and magic. The most common forms used were from cats and crocodiles (Estes 2004:145). In the *Brooklyn Papyrus* one finds use of excrement from the grey mullet, flies, cows, donkey, pelican, tortoise and one possible instance of human excrement. Excrement is used in the *Brooklyn Papyrus* in treatments to be ingested, with one exception where fly excreta was used on a wound.

7.2.26.2 Note 2

Sauneron (1989:72) suspects that this colour may be black, based on the example in Paragraph 54e, where the sign for *km* (black) appears above the sign for *jwn*.

Colour was very important to the ancient Egyptians and each colour had significant meanings. It has been noted in the treatments in the *Brooklyn Papyrus* that occasionally the colour of an animal, from which blood, organs or excrement is obtained, is specified, for example: fat of a black cow, or blood of a red goat. According to Pinch (2006:81), black was a popular colour in magic and it was often specified that blood or milk must be obtained from a black animal. Although the colour red was often associated with negativity such as chaos and evil, it was also linked to the solar eye goddess and, because of this link, was also very powerful (Pinch 2006:81).

7.2.26.3 Note 3

The phrase *mw n šbt* is tentatively translated by Sauneron (1989:72) as *eau de fermentation* (water of fermentation). This line deserves a closer look. In Hannig (2006:878) one finds *šbt* (*šbb, šbbt*) with the sign  as a determinative, with possible meanings of *maische* and *gemaischter pflanzenschleim* (a mash or pulp, or mashed plant mucilage). Lalanne & Métra (2017:255) think that it may be *pâte pétrie* (kneaded bread dough). In Faulkner (1986:264) one finds a verb *šbb* with the possible meaning of ‘to knead bread in brewing’, and a noun *šbbt* referring to ‘kneaded bread-paste’. This latter meaning concurs with the meaning of *pâte*

pétrie supplied by Lalanne & Métra (2017:255). Von Deines & Grapow (1959:487–8) discuss *šb.t* (*šbb.t, šbb*) as a sort of pulp or mash, barley crushed for beer, or a mixture of barley pulp in water. This mash could be what Hannig (2006:878) refers to as pulp or mashed plant mucilage. Barley produces a mucilage or slime when soaked in water, and this may be the 'water of fermentation' referred to by Sauneron. The word for mucilage is *ḥsꜣ,* and *šbt* is probably the mashed barley which gives rise to the mucilage fluid, which eventually ferments to produce beer.

7.2.26.4 Note 4

This may be an application that is applied to the whole body of the patient as the recipe does not specify that it is to be applied to the bite wound.

7.2.27 Paragraph 46j

Brooklyn Papyrus, page 3, lines 16 to 17

kt: sd pnw rdyt: $^{1}/_{8}$*, prt qbw:* $^{1}/_{32}$*. nḏ snᶜᶜ ḥr jrp:* $^{1}/_{64}$ + $^{1}/_{64}$ + $^{1}/_{64.}$ *swr.*

Another (remedy): tail-of-the-mouse plant[1]: $^{1}/_{8}$, seed (or fruit) of the *qebu* (plant)[2]: $^{1}/_{32}$. Crush smoothly in wine: $^{1}/_{64}$ + $^{1}/_{64}$ + $^{1}/_{64.}$ (For) drinking.

7.2.27.21 Note 1

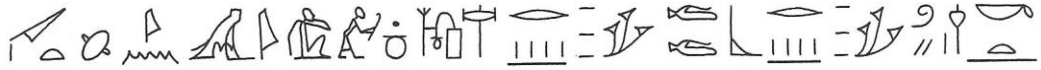
See 7.2.18.4 for the note on the tail-of-the-mouse plant (*sd pnw*) in Paragraph 46a.

7.2.27.2 Note 2

See 7.2.18.9 for the note on the *qebu* plant (*qbw*) in Paragraph 46a.

7.2.28 Paragraph 46k

Brooklyn Papyrus, page 3, line 17



kt: ḥḏw: $^{1}/_{4}$*, bdd*(*w-kɜ*)*:* $^{1}/_{4}$*. nḏ snᶜᶜ, ᶜtḥ. swr jm jn wḥd dmt*.

Another (remedy): onion[1]: $^{1}/_{4}$, watermelon[2]: $^{1}/_{4}$. Crush smoothly, filter. (For) drinking by the one suffering the bite.

7.2.28.1 Note 1

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.28.2 Note 2

The identity of the *bdd* plant was unknown to Sauneron (1989:72) and he translates it as *beded*. A similarly named plant, also of unknown identity, the *bddw-kɜ*, appears in Ebers 139 and 208. In Hannig (2006: 283) and Faulkner (1986:86), one comes across *bddw-kɜ*, a plant, for which Hannig tentatively suggests the watermelon, *Citrullus vulgaris* (*Citrullus lanatus*). It is noted that the plant here in Paragraph 46k is *bdd*. Nevertheless, in Von Deines & Grapow (1959:189) one finds a variant spelling of  , an example from the *Berlin Papyrus* (Bln 111), as an alternative for  (see Von Deines & Grapow 1959:189 for the other variant spellings of *bddw-kɜ*). This alternative spelling in the *Berlin Papyrus* is exactly the same as found here in Paragraph 46k. In Manniche (1989:92) *bddw-kɜ* is equated with the watermelon, *Citrullus colocythoïdes* and *Citrulus lanatus* (see Figure 62 below).

Figure 62: Watermelon (*Citrullus lanatus*)[176]

According to Manniche (1989:92), *Citrullus colocythoïdes* was probably cultivated from Old Kingdom times, with *Citrullus lanatus* appearing later. It must be noted that *Citrullus*

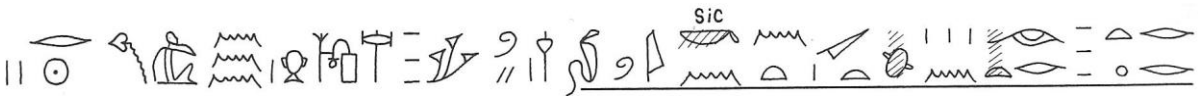
[176] Photograph of the watermelon (*Citrullus lanatus*): 'Citrullus lanatus (Thunb.) Cucurbitae by LennyWorthington is licensed under Creative Commons license CC BY-SA 2.0.

colocythoïdes is not to be confused with a plant from the same family, *Citrullus colocynthus*, the colocynth.

Watermelon has been present in ancient Egypt since Predynastic times (Murray 2000c:614). Watermelon seeds and its red, yellow or pale flesh were used in medical treatments during the Pharaonic era (Murray 2000c:633) and were used predominantly for gut ailments but also in pregnancy tests (Estes 2004:156). Watermelon was used in the *Brooklyn Papyrus* chiefly in wound treatments, but it also appears in two preparations to be ingested.

7.2.29 Paragraph 47a

Brooklyn Papyrus, page 3, line 17



rrt jrrt n wḫd dmt nt nkj: ḥḏw. nḏ snʿʿ ḥr mw. swr qʿ r hrw 2.

A remedy[1] which is made for the one suffering the bite of the neki (snake)[2]: onion[3]. Crush smoothly in water. (For) drinking (and) vomiting for two days.

7.2.29.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.29.2 Note 2

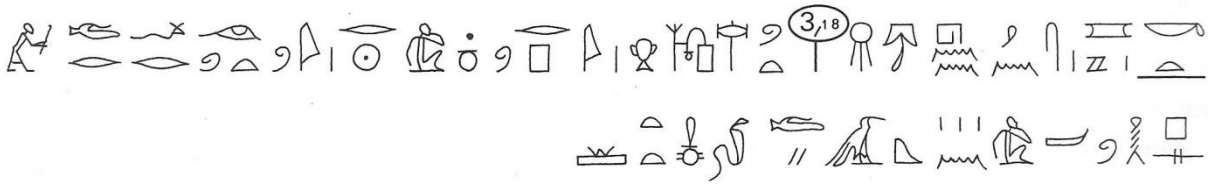
As mentioned by Sauneron (1989:72), the order of signs in the spelling of *knj* here is an error by the scribe. It should be *nkj* as per the example in Paragraph 45a (see 7.2.13).

7.2.29.3 Note 3

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.30 Paragraph 47b

Brooklyn Papyrus, page 3, lines 17 to 18



kt: mjs(*t*) *n hnn šw*(*t*). *nḏ snᶜᶜ ḥr jrp. swr r hrw. jw jr.tw.f r dr psḫw n qɜdy* (*ḫfɜw*)*, mjtt*.

Another (remedy): dried liver of a gazelle/deer [1]. Crush smoothly in wine. To drink for a day. It should be prepared to supress (the effects of) the bites of the qady (snake)[2], and the likes thereof.

7.2.30.1 Note 1

Although the dictionaries tend to translate *hnn* as 'deer', the word may, in fact, refer to 'gazelle'. Hannig (2006:527) refers to *hnn* as *damhirsch* (fallow deer [*Dama dama*]) – which is a species native to Europe, but then he specifies the species *Dama schaeferi*, which is the Dama gazelle (see Figure 63 below) – a currently endangered species found in the Sahara.

Figure 63: Dama gazelle (*Dama schaeferi*)[177]

It is still uncertain whether deer (*Cervidae* species) were actually present in ancient Egypt or not, despite their depiction in tomb reliefs (Serpico & Whyte 2000:408), whereas the gazelle appears in many representations of Dynastic Period hunting scenes, and were often offered in sacrifice by pharaohs (Darby *et al* 1977:234*)*. Gazelle (or deer) horn, liver, heart and blood were all used in the *Brooklyn Papyrus* treatments.

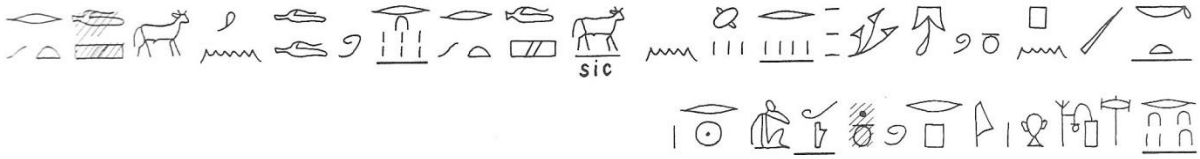
[177] Photograph of the Dama gazelle (*Dama schaeferi*) by Lissa Rabon is licesenced under Creative Commons license CC BY-ND 2.0.

7.2.30.2 Note 2

The *qɜdy* mentioned in this paragraph is followed by the determinative for 'snake'. It therefore differs from the *qɜdy* mentioned in Paragraph 40, which is possibly a lizard. The *qɜdy* snake may well be one of the snakes discussed in the lost 13 paragraphs at the start of the Papyrus.

7.2.31 Paragraph 47c

Brooklyn Papyrus, page 3, line 18



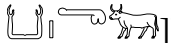
kt: sd pnw: $^{1}/_{4}$*, ḥs ḫmt dšrt:* $^{1}/_{16}$*, wdd n ḫmt dšrt:* $^{1}/_{32}$*. nḏ snᶜᶜ ḥr jrp:* $^{1}/_{32}$ + $^{1}/_{64}$*. swr r hrw.*

Another (remedy): tail-of-the-mouse plant[1]: $^{1}/_{4}$, droppings of a red cow[2], Gall of a red cow: $^{1}/_{32}$. Crush smoothly in wine: $^{1}/_{32}$ + $^{1}/_{64}$. (For) drinking for a day.

7.2.31.2 Note 1

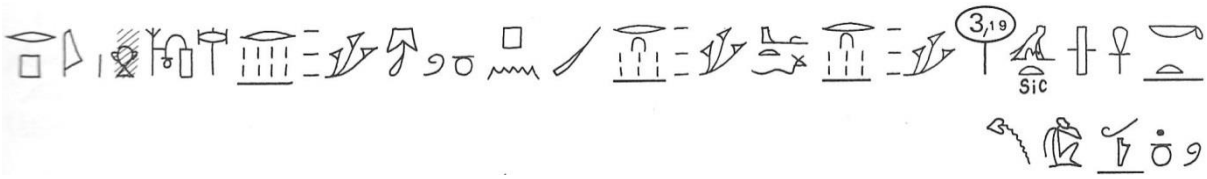
See 7.2.18.4 for the note on the tail-of-the-mouse plant (*sd pnw*) for Paragraph 46a.

7.2.31.2 Note 2

Sauneron (1989:73) has indicated a spelling error here as the word in the hieroglyphics differs from the spelling of *kɜ* (bull []) in Paragraph 46i. His translation here reads *crotte de taureau rouge* (droppings of a red bull). However, the adjective *dšrt* (red), which indicates the colour of the beast, has a feminine ending. Based on this and the fact that there is a distinct difference in the way *kɜ* is represented in Paragraph 46i, one could conclude that the sign  in this paragraph is an abbreviated form of a word which is intended to mean *ḫmt* or even *jḥt* (a cow), and that there is no spelling error.

7.2.32 Paragraph 47d

Brooklyn Papyrus, page 3, lines 18 to 19



kt: ʿnḫ-jm(j)⸢t⸣: 1/16, ʿf(ɜ): 1/16, sd pnw: 1/8, nḏ snʿʿ ḥr jrp: 1/32 + 1/64. swr qʿ.

Another (remedy): berries of the chaste tree[1]: 1/16, wild lettuce (or sweet clover)[2]: 1/16, tail-of-the-mouse plant[3]: 1/8. Crush smoothly in wine: 1/32 + 1/64. (For) drinking (and) vomiting.

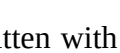
7.2.32.1 Note 1

In Von Deines & Grapow (1959:98) *ʿnḫ-jmj* appears as an unknown plant, lush and fragrant, used in remedies to be taken orally, as well as for salves and in bandaging. The exact identify of the *ʿnḫ-jmj* plant is unknown and there have been several attempts at idenitifcation by various scholars. As a result, Hannig offers possible, but uncertain, identifications of this plant as the henna bush, *Lawsonia inermis*, or a lotus plant (Hannig 2006:159).

The identity of the *ʿnḫ-jmj* is discussed at length in an article by Bardinet (2013), where he connects it very closely with another plant, the *snw*. According to him, *le plante senou et la graine de cette plant, graine appelée* ânkh-imy (the *senou* plant and the berries of this plant, the berries named named *ânkh-imy*) (Bardinet 2013:33) are frequently mentioned in funerary and medical texts.

As for the identification of the *snw* plant, Von Deines & Grapow (1959:98) say that according to Dawson it might be *Convolvulus hystrix*, while Ebbell considered the saffron, *Crocus sativus* (Von Deines & Grapow 1959:443). The blue lotus, *Nymphaea cerulea*, is given by Hannig (2006:775) as a possibility for *snw*, and Westendorf also gives an identity of the blue lotus to *snw* (Bardinet 2013:33), as does Aufrére, but Westendorf actually also connected the *snw* and *ʿnḫ-jmj* with each other. The name in the Assyrian Herbal for this *snw* plant is *šunû* and its Egyptian name may possibly be *sʿɜm*, according to Manniche (1989:155).

Bardinet sets out to provide a positive identity for *snw* and *ʿnḫ-jmj* based on readings in the *Papyrus Louvre E 3284*. He translates from the Papyrus: *...de la plante senou. Elle pousse dans une contrée étrangère don't le nom est ḥʿtt (...) Des rameaux à grains*-ânkh-imy

poussant sur elle (Bardinet 2013:36), in other words, a plant called *senou* grows in a foreign region named *ḥʿtt*, and branches of berries (seeds, fruits) called *ʿnḫ-jmj* grow on this plant. The determinative frequently used with *ʿnḫ-jmj* is  , which tends to make one want to name *ʿnḫ-jmj* as a plant, rather than a berry, seed or fruit, but Bardinet (2013:37) feels that one should reconcile  with the branch bearing the fruit (seeds, berries) rather than with the produce itself. This spelling of the word *ʿnḫ-jmj* with as a determinative is the one used in the *Brooklyn Papyrus*, Paragraphs 47d and 54h. However, in the *Papyrus Louvre E 3274*, the word is written with  , which Bardinet (2013:37) believes indicates the status of *ʿnḫ-jmj* as a fruit (berry, seed).

The *Papyrus Louvre E 3274* further provides evidence that *snw* is not a plant that is native to Egypt. It is a plant that grows to the east and the west of Egypt, and which can be found bordering the coast. Its berries are black when ripe (see Figure 65 below) and its leaves resemble that of the willow. There is only one possible plant, according to Bardinet (2013:41), that fits this profile, and that is *Vitex agnus castus* – the chaste tree (Abraham's balm, Monk's pepper tree) (see Figure 64 below). The name *snw* corresponds with the Babylonian *šunû* (Bardinet 2013:43).

Figure 64: Chaste tree (*Vitex agnus castus*)[178]

Figure 65: Berries of the *Vitex agnus castus*[179]

A recognised pharmacological property of the chaste tree is anti-aphrodisiac (Nunn 2002:216), and according to Meyerhof (in Rosner 1979:208) the berries are still sold in the

[178] Photograph of '*Vitex agnus-castus*' by Peganum is licensed under Creative Commons license CC BY-SA 2.0.
[179] Photograph of '*Vitex agnus castus*' by H. Zell (2009) is licensed under Creative Commons license CC BY-SA 2.0.

Egyptian bazaars for this purpose. The plant was also used by the ancient Egyptians in treatments for problems associated with the skin, joints and the intestines (Estes 2004:143).

7.2.32.2 Note 2

The identity of *ꜥfꜣ* was long thought to be 'lettuce' (Dawson 1934:41). However, after Dawson's article on *ꜥfꜣ* in *Studies in the Egyptian medical texts–III* (1934), many believed that it may be melilot or sweet clover (*Melilotus officinalis*). Indeed, Sauneron (1989:73) translates it as *mélilot* but Manniche (1989:120) says that the ancient Egyptian word for sweet clover has yet to be identified.

Hannig (2006:150) indicates that *ꜥfꜣ* (*ꜥfꜣy*) is *Melilotus*, which agrees with the possible meanings given by Faulkner (1986:42), and Von Deines & Grapow (1959:87), but the earlier identification of lettuce is maintained by Lalanne & Métra (2017:233) in their up-to-date work on the *Ebers Papyrus*. Their translation of *ꜥfꜣ* goes a little further and refers to it as *laitue vireuse*, which is the wild (or bitter) lettuce, *Lactuca virosa*. This differentiates it from the cos or romaine lettuce, *Lactuca sativa*, which was eaten by the Egyptians, both in ancient and today. The name for *Lactuca sativa* is *ꜥḥw*, which is the better known and commonly used word for lettuce. Unlike *ꜥfꜣ*, it is not a word that appears in medical texts (Manniche 1989:113), unlike *ꜥfꜣ*.

Dawson (1934:41) gives two reasons why he does not think that *ꜥfꜣ* is lettuce. Firstly, as already said, *ꜥḥw* was the more commonly used word. Secondly, the medicinal uses of *ꜥfꜣ* in the medical papyri seemed to align themselves with those listed by Dioscorides in *De materia medica* for sweet clover (*Melilotus officinalis*). Based on this, Dawson (1934:41) proposed to identify *ꜥfꜣ* as sweet clover rather than lettuce.

However, many botanical ingredients have similar medicinal properties and are used to treat the same ailments. For example, both *Melilotus officinalis* and *Lactuca virosa* have the following medicinal properties in common: antispasmodic, diuretic, sedative, pain reliever, and they are both used in cough remedies[180]. There does not seem to be enough evidence that Dawson's reasoning carries sufficient weight to warrant changing the identification unless

[180] www.naturalmedicinalherbs.net (accessed 19th December 2019).

further clues come to light. Estes (2004:143) also thinks that Dawson's identification of *ꜥfꜣ* as sweet clover (*Melilotus officinalis*) (see Figure 66 below) is incorrect.

Figure 66: Sweet clover (*Melilotus officinalis*)[181]

Figure 67: Wild lettuce (*Lactuca virosa*)[182]

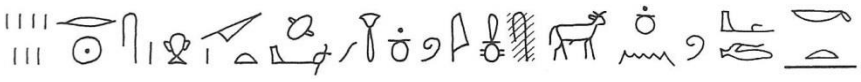
The consideration raised by Manniche (1989:113) is that *ꜥbw* is the cos lettuce, *Lactuca sativa*, while *ꜥfꜣ* is the wild lettuce, *Lactuca virosa* (see Figure 67 above). The botanist, Victor Loret, also proposed *Lactuca virosa* for *ꜥfꜣ* (Von Deines & Grapow 1959:87), as did Aufrère (Nunn 2002:153). Nunn (2002:14) says that *ꜥfꜣ* is now believed to be the wild lettuce. Aufrère (1986:6) believes that it is possible that *ꜥfꜣ* is *Lactuca virosa*, while *ꜥbw* is *Lactuca sativa*. Clearly there are two distinct types of lettuce: one that is used for culinary purposes and therefore never mentioned in the medical papyri and another that was used for medicinal purposes, as it still is today. According to Dioscorides, the wild lettuce was good for inducing sleep and as a pain-killer (Osbaldeston & Wood 2000:294).

7.2.32.3 Note 3

See 7.2.18.4 for the note on the tail-of-the-mouse plant (*sd pnw*) for Paragraph 46a.

7.2.33 Paragraph 47e

Brooklyn Papyrus, page 3, line 19



[181] Photograph of sweet clover (*Melilotus officinalis*): '2009.07.03-10.33050_IMG_5485' by AudreyZharkikh is licensed under Creative Commons license CC BY 2.0.
[182] Photograph of wild lettuce (*Latuca virosa*) by Любо Гаджев is licensed under Creative Commons license CC BY-SA 2.0.

kt: ꜥd n ḫmt, smj wꜣḏ. wt dmt ḥr.f r hrw 7.

Another (remedy): fat[1] of a cow, fresh curds[2]. Dress the wound with it for seven days.

7.2.33.1 Note 1

Sources of fats in ancient Egypt, according to Serpico & Whyte (2000:406), included cattle, sheep, goats, pigs and donkeys, as well as wild animals like ibex, gazelle, boars, and waterfowl such as geese (Serpico & Whyte 2000:408). Medical texts indicate that fat was also obtained from hippopotami, snakes, crocodiles, mice and fish (Serpico & Whyte 2000:408) and cats (Estes 2004:145). In the *Brooklyn Papyrus*, fat was obtained for treatments from cows (see 7.2.33, 7.2.69, 7.2.72, and 7.2.132), goats (see 7.2.62), hippopotami (see 7.2.99), a bull (see 7.2.88), and geese (see 7.2.78). The use of fat in the *Brooklyn Papyrus* treatments is exclusively for medicinal preparations for wounds or body covering. Estes (2004:145) says that fat seemed to be used as a vehicle for other ingredients that were believed to have active properties for skin treatments.

7.2.33.2 Note 2

Curds would have been made from the milk of cows, sheep and goats (Serpico & Whyte 2000:409).

7.2.34 Paragraph 47f

Brooklyn Papyrus, page 3, line 19

kt: ḫꜣw n jbs, bjt. wt ḥr.s.

Another (remedy): leaves of the *ibes*[1] plant, honey. Apply a dressing (lit. bandage) with it.

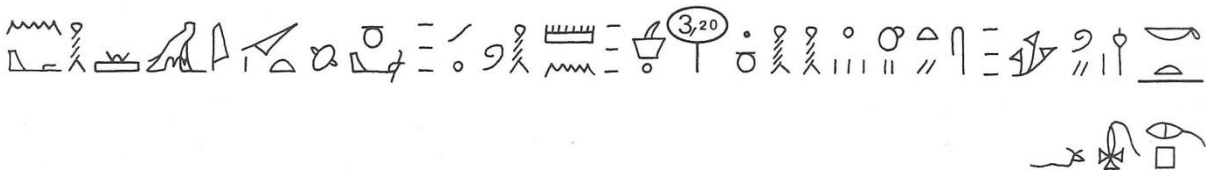
7.2.34.1 Note 1

The *jbs* plant is unidentified. A similarly named plant, *jbsꜣ,* also with unknown identity is found in the *Ebers Papyrus*. A footnote (29) in Lalanne & Métra (2017:61) say that *jbsꜣ* may be mint, based on Germer's possible identification in *Handbuch Altägyptischen Heilpflanze*

(2008). According to an entry in Erman & Grapow (vol. 1, 1926:64), it is a plant from Wadi Natrun. Ebers 447 uses a powdered form of the plant, while Ebers 110 and 675 do not specify the part of the plant that is used. This unknown plant appears again in Paragraph 87a.

7.2.35 Paragraph 47g

Brooklyn Papyrus, page



kt: ḥḏw, stj, (n)ḥḥ, snṯr, mnḥw. nḏ wḫd dmt jm ḥnᶜ kɜp.f.

Another (remedy): onion[1], yellow ochre[2], sesame oil[3], terebinth[4,] beeswax[5]. Protect the one suffering the bite with it by fumigating him[6].

7.2.35.1 Note 1

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.35.2 Note 2

Sauneron (1989:74) tentatively translates *stj* as *ocre*-sety. Lalanne & Métra (2017:63) differentiate between red ochre (*mnš.t*) and ochre (*stj*). In the *Ebers Papyrus*, *mnšt* and *stj* appear side by side in the same remedy. Indeed, this differentiation between *stj* and *mnšt* is echoed by Von Deines & Grapow (1959:468), who inform us that Ebbell related *stj* to yellow ochre (see Figure 68 below).

Faulkner (1986:253) tentatively suggests ‘Nubian ocre’, possibly because of the closeness of the word to *styw* (Nubians). Harris (1961:152) says that the word *stj* could be used as a general term for the word ‘ochre’. However, Harris (1961:151) also says that *stj* was specified alongside the word *qnyt*, (the mineral, yellow orpiment, used for yellow pigment) to be used to colour the barque of Ra and also the images of *ḥḥ*. This suggests to Harris (1961:151) that *stj* and *qnyt* were parallel in meaning with each other, rather than contrasting.

Figure 68: Yellow ochre[183]

The determinative 𓃾 used in the spelling of *stj* in this Paragraph is a little strange and most likely it was intended to be 𓇋, which is the sign that one would normally find associated with the word *stj*.

7.2.35.3 Note 3

The translation given by Sauneron (1989:74) is *huile*-heh (*heh* oil). It appears that the word should be *nḥḥ*, a 'sesame or olive oil' in Hannig (2006:448), where the identical spelling used in this paragraph appears as an alternative spelling. Neither *ḥḥ* nor *nḥḥ* appears in the *Ebers Papyrus*, but one finds mention of *nḥḥ* in Von Deines & Grapow (1959:311). They give only two known examples of *nḥḥ* in the medical papyri. One is in *Chester Beatty VI*, where it is used in an enema, and the other example is on the *Berlin Ostracon 5570*. The spelling on the ostracon is the same as the spelling in this paragraph of the *Brooklyn Papyrus*.

The date for the introduction of sesame into Egypt is controversial. Serpico & Whyte (2000:397) say that according to Greek papyri, it was cultivated in Egypt in the Ptolemaic Period, especially in the Fayoum area, and that some scholars believe that it was not grown in Egypt until this time. However, according to Von Deines & Grapow (1959:311), this ingredient was first encountered in the New Kingdom Period and also appears frequently in later Coptic medicine[184]. Keimer also believes that the plant was introduced during New Kingdom Period (Serpico & Whyte 2000:397), when the name *nḥḥ* first appeared. More light is shed on this by Manniche (1989:147) who says that the lack of mention of *nḥḥ* in medical papyri may be due to the fact that the texts were compiled before the appearance of sesame

[183] Photograph of yellow ochre: 'Mother of ochre' by mikecogh is licensed under Creative Commons license CC BY-SA 2.0.

[184] The Coptic period in Egypt lasted from the late Roman period (*c.* 395 AD until the time of the Islamic conquest (*c.* 641 AD) (Shaw & Nicholson 1995:71).

(*Sesamum indicum*). The word *jkw* refers to the 'sesame plant' and *nḥḥ* refers to the 'oil'. The oil of sesame was used for lamp oil and ointments, and in the diets of workmen at Deir-el-Medina (Manniche 1989:147).

7.2.35.4 Note 4

A bit of confusion exists around the correct meaning of *snṯr*. Some sources give it as 'terebinth', and others give a meaning of 'incense' or even 'frankincense'. Both terebinth and frankincense are a type of resin, and can be used as incense, a substance that is burned and gives off an aroma.

Terebinth trees (*Pistacia* species – see Figure 69 below) occur in Mediterranean and North African locations. Terebinth resin (see Figure 70 below) was used along with frankincense and myrrh in embalming, and as incense (Langenheim 2003:388). Resin from the frankincense tree (*Boswellia* species) is a fragrant balsam (Langenheim 2003:362), and *Boswellia papyrifera*, found in Sudan, Ethiopia and other parts of East Africa, was the main source of frankincense in antiquity (Langenheim 2003:364).

Figure 69: Terebinth (*Pistacia lentiscus*)[185]

Figure 70: Terebinth resin[186]

The word *snṯr* is translated as *térébinthe* by Sauneron (1989:74), and as *résine de térébinthe* (resin of terebinth), by Lalanne & Métra (2017:252) in their recent work on the *Ebers Papyrus*. 'Incense' is the meaning given by both Faulkner (1986:234) and Hannig (2006:784), and in the latter source one finds the meaning of 'incense' particularly pertaining to *Boswellia sacra*. 'Incense' is a broad term and it is preferable to be more specific regarding the botanical species that the resin comes from.

[185] Photograph of terebinth (*Pistacia lentiscus*): 'Pistacia lentiscus' by jccsvg is licensed under Creative Commons license CC BY 2.0.
[186] Photograph of terebinth resin: 'mastic resin from *Pistacia lentiscus*' is licensed under Creative Commons license CC BY-SA 3.0.

It seems likely that in the Pharaonic Period, *snṯr* was terebinth resin, but the word began to carry a more general meaning of 'incense' during the Ptolemaic era (Nunn 2002:158).

7.2.35.5 Note 5

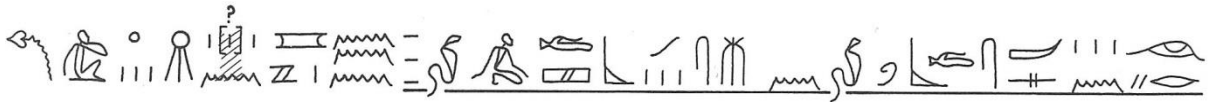
Wax is used in four of the *Brooklyn Papyrus* treatments, three of which are for bite wounds and one fumigation. In the *Hearst Papyrus* it appears to have been used as a binding agent, an ingredient in gut disorder treatments, and possibly as an adhesive for bandages (Estes 2004:157).

7.2.35.6 Note 6

These ingredients used together would be able to burn, especially considering the presence of the resin and sesame oil, which was used as a lamp oil. Beeswax would probably help to sustain the burning time of the products.

7.2.36 Paragraph 48a

Brooklyn Papyrus, page 3, line 20



jrr n ps(ḥ) sdbw n msw bdš: mw, mj(st) (n) [hn]n šw(t). swr qˁ.

That which is made for the bite of the sedeb or the mesou-bedesh (snake): water[1], dried liver of a [gazelle / deer][2](For) drinking (and) vomiting.

7.2.36.1 Note 1

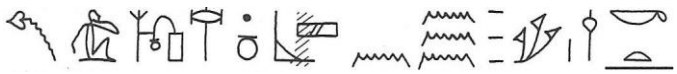
The word *mw* was not translated by Sauneron (1989:74). Water or some other fluid would be an essential part of this recipe, otherwise the dry ingredients would not be able to be drunk.

7.2.36.2 Note 2

Sauneron (1989:74) is justifiably confident with his proposed translation of *foi[e de duim] sec* (dried liver of a deer). This is the most likely restoration of the text when one compares it with similar signs in Paragraph 47b.

7.2.37 Paragraph 48b

Brooklyn Papyrus, page 3, line 20



kt: ḥḏw, mw n šb(*t*)*. nḏ snʿʿ. swr qʿ.*

Another (remedy): onion[1], water of barley mash[2]. Crush finely. (For) drinking (and) vomiting.

7.2.37.1 Note 1

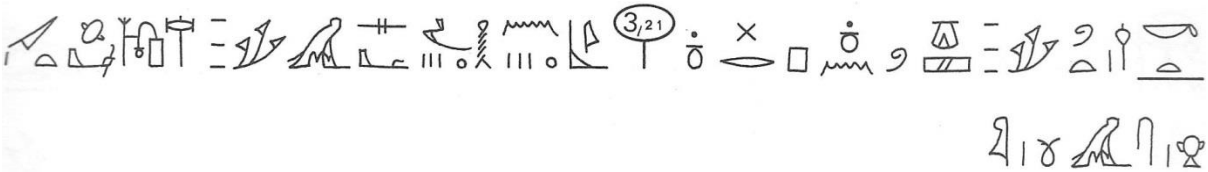
See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.37.2 Note 2

This same ingredient appears in Paragraph 46i. Refer to 7.2.26.3.

7.2.38 Paragraph 48c

Brooklyn Papyrus, page 3, line 20 to 21



kt: ḥḏw, gɜš n p(*ɜ*)*-wr, jbnw, ḥmɜt, sʿm. nḏ snʿʿ. wt dmt ḥr.s. m-šs mɜʿ*(*t*)*.*

Another (remedy): onion[1], lees[2] of vinegar[3], alum[4], salt, white wormwood[5]. Crush smoothly. Bandage the wound with it. It is truly excellent.

7.2.38.1 Note 1

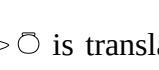
See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.38.2 Note 2

The word *gꜣš* requires a bit of attention for its meaning helps with understanding what the ingredient *pꜣ-wr* is. Sauneron (1989:74) does not provide a translation for *pꜣ-wr*, leaving it, instead, as *paour*.

Hannig (2006:965) gives two examples of the use of the word *gꜣš*. Firstly, *gꜣš n ḥnqt nḏmt* (*gash* of sweet beer), and secondly: *gꜣš n ꜥwꜣyt* (*gash* of fermented liquid). Sauneron (1989:74) correctly gives *gꜣš* a meaning of 'lees' or 'dregs'. Considering its association with sweet beer and a fermented liquid, the word *gꜣš* most likely refers to the lees of a beverage that has fermented. One could, therefore, conclude that *pꜣ-wr* is then the liquid resulting from something that has fermented.

7.2.38.3 Note 3

The word  is translated by Sauneron (1989:75) as *liquide*-paour. Here, the sign  holds the value of *wr* (see Gardiner 1957:539). The word is, in fact, *pꜣ-wr*. This word appears in Von Deines & Grapow (1959:192), who say that *pꜣ-wr* is a liquid that appears in a few remedies: in the *Berlin Papyrus* in a remedy to be drunk, and in a bandaging treatment in the *Hearst Papyrus*. In the *London Papyrus 10059*, where the ingredient is *thꜥt nt pꜣ-wr*, the dregs of *pꜣ-wr* are used in an ointment. In this particular remedy in the *Brooklyn Papyrus* one finds a similar ingredient: *gꜣš n pꜣ-wr*.

Hannig (2006:288) says that *pꜣ-wr* is a drink of lesser quality. It is possibly a fermented beverage of lesser quality than wine. The answer is provided by Aufrère (1987:36): *pꜣ-wr* is 'vinegar', and Baum (1988:260) also says that in all probability *pꜣ-wr* refers to vinegar. The alternative name for vinegar, which is *ḥmḏ*, is not known in medical texts (Aufrère 1987:37), where vinegar is rather known under the names *jp-wr* (as it is in the *Ebers Papyrus*), or *pꜣ-wr*.

The name *pꜣ-wr* was included in a letter from the Nineteenth Dynasty regarding a wine estate and its annual yields. Fifty jars of *pꜣ-wr* had been produced, along with wine, *šdḥ* (possibly pomegranate wine) and quantities of grapes (Murray 2000b:593). According to Darby *et al* (1977:617), the Egyptians make no mention of vinegar in any texts. However, as vinegar is a result of over-fermented wine, they were surely familiar with it.

Examples of the mention of vinegar by non-Egyptians are given by Darby *et al* (1977:617). Firstly, the philosopher Chrysippus is believed to have said that Egyptian vinegar, along with Cnidian vinegar, was the best. Secondly, Pliny mixed vinegar with clematis as an asp-bite antidote, and also mixed vinegar with Nile duck-weed for wound treatments. Thirdly, Dioscorides, as a traveller in Egypt, used vinegar, often with other ingredients, for a variety of ailments. Vinegar, therefore, must have been in use in ancient Egypt prior to the arrival of the Greeks, to my mind.

7.2.38.4 Note 4

Alum is aluminium sulphate or aluminium hydroxide (see Figure 71 below). As potassium sulphate or potassium hydroxide it is known as potash.

Figure 71: Alum crystals[187]

Alum was used in the leatherworking industry as a mordant for dying and could be used on both skins and textile (Von Driel-Murray 2000:304). Alum was apparently well-known to the ancient Egyptians because it was found in abundance in the Egyptian deserts in its raw state, according to Meyerhof (in Rosner 1979:261).

7.2.38.5 Note 5

The identity of the *sʿm* plant was unknown to Sauneron, as he translates it as '*plante*-sâm'. He may well have relied on a source such as Von Deines & Grapow (1959:427), who say *sʿm* is an unidentified plant that could be used in remedies to be taken by mouth, inhaled, and used with bandaging in ointments, and as suppositories.

[187] Photograph of alum crystals: 'Ammonium aluminium sulphate crystals' by Devon Fyson is licensed under Creative Common license CC BY-SA 4.0.

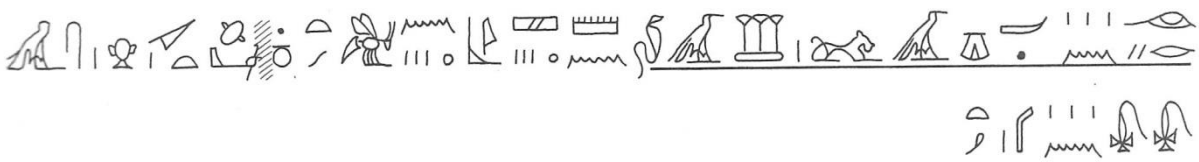
Interestingly, Dioscorides speaks of a plant known by the name of *somi* by the Egyptians and *absinthium rusticum* by the Romans (Osbaldeston & Wood 2000:397). The identity of *sʿm* is provided by Hannig (2006:724) and Manniche (1989:80) as *Artemisia absinthium*, the wormwood plant.

Figure 72: White wormwood (*Artemesia herba alba*)[188]

However, according to Aufrère (1986:13, footnote 2) it seems that *sʿm* is the white wormwood, *Artemisia herba alba*, instead because *Artemisia absinthium* would have to have been imported. *Artemisia herba alba* (see Figure 72 above) grows in North Africa. Medicinally, in ancient Egypt, wormwood was used as an anthelminthic and to treat skin inflammations, coughs and also utilised in ointments (Manniche 1989:80).

7.2.39 Paragraph 49a

Brooklyn Papyrus, page 3, line 21



jrr n psḥ gɜrwšɜ: mnš(*t*)*, jbnw, bjt. wt dmt ḥr.s m srf n ḏbʿ.*

[188] Photograph of white wormwood (*Artemesia herba alba*): 'Artemesia herba-alba' by Kurt Strueber (2004) is used under GNU Free Documentation License.

That which is made for the bite of a garousha[1] (snake): red ochre[2], alum, honey. Dress the bite wound with it at the warmth of a finger.

7.2.39.1 Note 1

This snake *gɜrwšɜ* is called *gerech* by Sauneron (1989:75). He says that this name comes from the East where one finds the word *ʿqšr* in Ugaritic, and that the origin of this word is probably Akkadian, namely: *kuṣimtu, kurṣindu or kursitta*, referring to the scales of the snake. This particular snake may be one that was discussed in one of the lost first 13 paragraphs of the Papyrus (see 9.2.1.2).

7.2.39.2 Note 2

Red ochre contains iron oxides which give it its red colour (see Figure 73 below). Estes (2004:152) says that it was used non-selectively and mainly for external treatments.

Figure 73: Red ochre[189]

Red ochre appears in five treatments in the *Brooklyn Papyrus* and Nubian red ochre appears in one. All of these treatments are for bite wounds.

7.2.40 Paragraph 49b

Brooklyn Papyrus, page 3, line 21

kt: ⌜s⌝ʿm, ḥ(n)qt nḏmt. swr qʿ.

[189] Photograph of red ochre by Wotlarx licensed under Creative Commons license CC BY-SA 4.0.

Another (remedy): white wormwood[1], sweet beer[2]. (For) drinking (and) vomiting.

7.2.40.1 Note 1

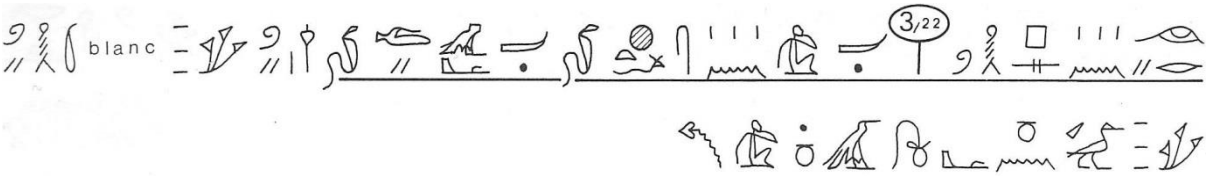
The intial sign in this word is strange. It appears that there may be a spelling error but one cannot be quite certain, and it appears again in Paragraph 51e. Sauneron (1989:74, 79) transcribes this word as [s]*âm* for Paragraph 49b and *s*[?]*âm* for Paragraph 51e, saying it is an unknown species of plant. Cf. Paragraph 48 (7.2.38); Paragraph 73 (7.2.90) and Paragraph 75b (7.2.94) where there is a spelling of  for the word *sʿm* (wormwood). See also the note 7.2.38.4 for Paragraph 48.

7.2.40.2 Note 2

See 7.2.7.6 for the note on sweet beer (*ḥnqt nḏmt*) in Paragraph 43a.

7.2.41 Paragraph 50a

Brooklyn Papyrus, page 3, lines 21 to 22



jrr n psḥw n sḫtf psḥ mʿdj: ḥḏw, (?), *tḥwy, ḥsɜ n ʿwɜ*(*yt*). *swr qʿ.*

A preparation (lit. that which is prepared) against the bites of the sekhtef (snake) and the bite of the mady (snake): onion[1], (?), peas[2], mucilage of fermentation (fermented mucilage)[3]. (For) drinking (and) vomiting.

7.2.41.1 Note 1

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.41.2 Note 2

See 7.2.14.1 for the note on peas (*tḥwy*) for Paragraph 45b.

7.2.41.3 Note 3

As Sauneron (1989:76) points out, the spelling of the word *ḥsɜ* is different in this paragraph to else where in this manuscript. The spelling here of  for the word *ḥsɜ* should not be confused with  for the word *mrḥt* which appears in Paragraph 66b (see note 7.2.78.1 for the meaning of the word *mrḥt*). In other places in the *Brooklyn Papyrus*, the word *ḥsɜ* is spelled  , both on its own (see Paragraphs 45c [see note 7.2.15.1] and 45d) and where it is used in the phrase *ḥsɜ n ʿwɜyt* (see Paragraphs 51e, 72b, 75b, 85d and 89). (Cf. Hannig 2006:602 for other variations on the writing of the word *ḥsɜ*).

The term *ḥsɜ n ʿwɜyt* appears in the *Ebers Papyrus* in treatments 211 and 312, and Lalanne & Métra (2017:91,111) translate this phrase as *mucilage de fermentation* (mucilage of fermentation). In a footnote they (Lalanne & Métra 2017:111) refer to an article by Vandier (1964) as a reference, saying that the phrase *ḥsɜ n ʿwɜyt* is a fermented liquid obtained from risen dough, an interpretation which is also given be Sauneron (1989:76). The word *ḥsɜ* refers to 'mucilage' and the word *ʿwɜyt* refers to 'leaven', a fermenting agent. Von Deines & Grapow (1959:83) give a possible meaning of *Gegorenes von ḥsɜ* (fermented mucilage). The product called *ḥsɜ n ʿwɜyt* must, therefore, be mucilage that arises as a by-product of the fermention process, or is, itself, fermented.

7.2.42 Paragraph 50b

Brooklyn Papyrus, Page 3, line 22

kt: (n)ḥḥ, snṯr, bdd(*w-kɜ*). *gs jm*.

Another (remedy): sesame oil[1], terebinth, watermelon[2]. Smear (the patient) with it (lit. anoint therewith)[3].

7.2.42.1 Note 1

See 7.2.35.2 for the note on sesame oil (*nḥḥ*) in Paragraph 47g.

7.2.42.2 Note 2

See 7.2.28.1 for the note on the watermelon (*bddw-kɜ*) in Paragraph 46k.

7.2.42.3 Note 3

The word *gs* has a possible meaning of 'to anoint' (Faulkner 1986:291), and the phrase *gs m* means 'to anoint someone with oil' or 'to smear on the unguent'. The word 'anoint' has religious overtones, which are not out of place here. The smearing of this treatment (*pḫrt*) on the patient is a magical act intended to encircle the patient with protection. In this regard one must consider the words of Ritner 2008:57), who says that the root of the word *pḫrt* (treatment) possibly comes from the verb *pḫr*, meaning 'to go around' or 'to encircle'. This in itself has magical overtones of 'to enchant' and *pḫrt* can therefore be considered to be 'that which encircles, controls or contains' (Ritner 2008:57).

7.2.43 Paragraph 51a

Brooklyn Papyrus, page 3, line 22

jrr n psḏw n fy tj-ʿm: ḫmɜ(t) mḥ(t), (n)ḥḥ. wt dmt jm.

A preparation (lit. that which is prepared) against the bites of the ti-am viper: salt of the north[1], sesame oil[2]. Dress the bite wound with it.

7.24.3.1 Note 1

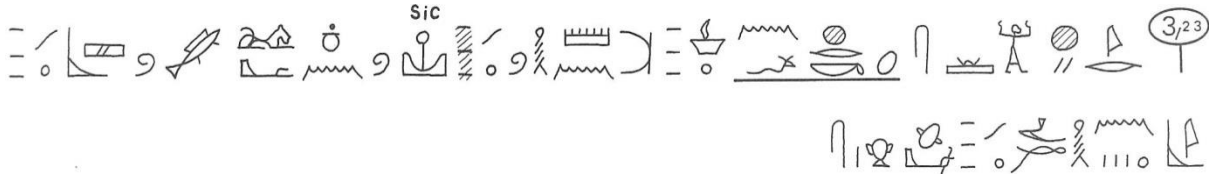
See 7.2.13.2 for note on salt of the north (*ḫmɜt mḥt*) for Paragraph 45a.

7.24.3.2 Note 2

See 7.2.35.2 for note on sesame oil (*nḥḥ*) for Paragraph 47g.

7.2.44 Paragraph 51b

Brooklyn Papyrus, page 3, line 23



jr ḫy.s, jr.ḫr.k n.f: snṯr pḫɜ, mnḥw, (*?*)*ḏw n šnᶜ, wšb*(*t*)*, jbnw, ḥmɜ*(*t*) *mḥ*(*t*)*. wt ḥr.s*

If it (the wound) is deep[1], you must prepare (a remedy) for him[2]: ground[3] terebinth resin[4], beeswax, (brine?)[5] of *chena* fish[6], *oushebet* mineral[7], alum, salt of the north[8]. Apply a dressing (lit. bandage) with it.

7.2.44.1 Note 1

Sauneron (1989:77) translates the word *ḫy* as *profonde* (deep). He suggests that *ḫy* is synonymous with *qɜj* (high) and the opposite of *šrj* (small) (Sauneron 1989:141). In fact, the sign  (A28 in Gardiner 1957:445) can be used as an ideogram for the word *qɜj*.

One must consider that as much as something can be high, it can also be deep. One could presume that the flesh around the wound has risen or that the wound is deep. There are various considerations to be made when assessing the bite wound. Sauneron (1989:170) says that some of these considerations involve the size of the bite wound, such as a wound that is big or small. Is the wound short (shallow), or is it narrow? Is it deep (*ḫy*)?

This word appears again in Paragraph 63a in the following line: *jr ḫy p*(*w*)*y.f psḥw…* (if this bite is deep…). Hannig (2006:629) says that this word *hy* has a possible meaning of *hoch sein* (to be high / tall); *erhaben sein* (to be raised / exalted); or *laut sein* (to be loud). The latter two meanings can be eliminated in the context of this paragraph. Therefore, it is likely that the word *ḫy* refers to the height / depth of the wound.

7.2.44.2 Note 2

The sign  (H8 in Gardiner 1957:474) in the phrase  is problematic. Sauneron does not comment on the unusual spelling at all, but simply transliterates the phrase as *jr.ḫr.k n.f* (See note 2 for Paragraph 63a in Sauneron 1989:87). The old suffix construction *jr.ḫr.k n.f*, normally written with the sign  (D4 in Gardiner 1957:450) is a standard phrase in

medical texts for saying ‘you must prepare for him’, followed by the remedy to be prepared and this is also the translation given by Sauneron (1989:77), *tu feras pour lui…* This phrase, using the same unusual sign plus an additional ‘curl *w*’, appears again in Paragraph 63a where the addition of the word *pḫrt* as the object of the action provides more clarity: *jr.ḫr.k n.f m pḫrt* (you must prepare a remedy for him). This same formula using the uncommon sign appears again in the *Brooklyn Papyrus* in Paragraphs 85c and 92, except that Sauneron wants the verb to mean ‘recite’ in Paragraph 85c, rather than ‘prepare a remedy’.

There are numerous examples of this phrase *jr.ḫr.k n.f* in the *Ebers Papyrus*, but written with the sign (D4) instead of  (H8). In *Ebers* 766 alone are six examples in lines 6, 7, 8, 10, 13 and 17. There are also various references for *jrj-ḫr.k n.f* in Von Deines & Westendorf (1961:80–81) and its use concerning the preparation of remedies. However no examples of the use of the sign  instead of the usual  are forthcoming from the well-known medical papyri.

7.2.44.3 Note 3

The words *snṯr pḫꜣ* are translated by Sauneron (1989:77) as *terebinthe* pekha. Lalanne & Métra (2017:239) say that *pḫꜣ* is ‘resin of terebinth’. This same ingredient (*snṯr pḫꜣ*) appears in Ebers 210, line 11. The usual word for ‘resin’ is *qmyt* and, indeed, in Hannig (2006:784) we find *qmyt nt snṯr* as ‘resin of terebinth’. Hannig (2006:784) suggests that *snṯr pḫꜣ* is ‘refined or ground incense’ (*zerriebener / gereinigter Weihrauch*). In Allen (2005a:445) one reads that  (*pḫꜣ*) is the ideogram for a kind of grain. This suggests a possible meaning of ‘granules of terebinth resin’ for *snṯr pḫꜣ*.

7.2.44.4 Note 4

See 7.2.35.3 for note on terebinth resin (*snṯr*) for Paragraph 47g.

7.2.44.5 Note 5

Sauneron (1989:77) understandably puzzles over the word preceding *šnᶜ*, and queries the spelling, saying that he does not find a word ending in *ḏw* which corresponds with  . Owing to the determinative  Sauneron proposes that the word concerns a liquid of some sort and, with reservation, suggests that it may be ‘brine’. The ancient Egyptians did both wet

and dry salting of fish (Ikram 2000:659). Wet salt curing of fish is also known as 'brining', and the fish or meat would be placed into a salt-water solution (Ikram 2000:663).

7.2.44.6 Note 6

The word *šnᶜ* is transcribed as *chena*. The exact species of fish is unknown but Hannig (2006:896) suggests something like *schwarmsalme* (salmon) or another fish *glaswels* (*Schilbe mystus* – the African butter catfish) as possibilities. This word is not found in Von Deines & Grapow (1959), nor can one find it in the *Ebers Papyrus*. According to Sauneron (1989:77), the *chena* fish is listed frequently in administrative documents, and these texts indicate that the fish could be delivered large or small, fresh or dried, and often cut up. Importantly, Sauneron (1989:77) states that their use in medicine was not known. This use of the *chena* fish here in the *Brooklyn Papyrus* as a remedy is therefore unusual. That Sauneron's work was published long after that of Von Deines & Grapow would explain why it does not appear in *Wörterbuch der Ägyptischen Drogennamen* (1959).

The Nile yielded a variety of fish which were included in the diet of the ancient Egyptians. Mostly they were preserved by salting, sun-drying and pickling (Darby *et al* 1977:369). Nine different varieties of fish, according to Darby *et al* (1977:379) make an appearance in the *Ebers Papyrus* prescriptions.

According to Estes (2004:145–146), the parts of the fish used in medical treatments for eye, head and skin disorders include the brains, head and bones. In the *Brooklyn Papyrus* a substance, possibly brine, made from the *chena* fish is used in a wound treatment. The mullet fish appears three times in the *Brooklyn Papyrus*, and its excrement is used in a treatment to be drunk, while its tongue and teeth are used in a preparation to be eaten, while the blood of the mullet is used in a wound treatment.

7.2.44.7 Note 7

The word *wšb*(*t*) is transcribed as *ouchebet* by Sauneron (1989:77) and also by Lalanne & Métra (2017:236). This mineral appears in Ebers 528, line 2 with a spelling of *wšbt* and in Ebers 636, line 3 with a spelling of *wꜣšbt*. Hannig (2006:235) identifies it as a mineral, possibly *kobalthaltiger* (a mineral which contains cobalt), but in Von Deines & Grapow (1961:144–145) it is listed as an unknown mineral.

Harris (1961:188) is able to shed some light on the nature of this mineral. Its medicinal use was originally known from three examples: the two given above from the *Ebers Papyrus*, and another example in the *Edwin Smith Papyrus*. Later, another example appeared in the *Papyrus Ramesseum V*. From these texts it was possible to establish that *wšbt* was used to treat wounds, and as a remedy to stop bleeding. Harris (1961:188) says that Breasted's assumption that it is an astringent is most likely correct.

The uses of *wšbt* are similar to those of the mineral *jmrw*, which is believed to be an alum compound and is also used on wounds, fractures and sprains (Harris 1961:187). It is believed that *wšbt* may similarly be an alum compound. Indeed, it is written next to 'alum' in the *Brooklyn Papyrus* and is used on a wound under a bandage. In two other texts, says Harris (1961:188), the word is written *wšb* and it occurs in lists where pigments such as *qnyt, ḫsbḏ n sš, ryt* and *mnšt* are mentioned. This suggests that *wšbt* may be an astringent earth and a pigment used medicinally, as a number of pigments were.

7.2.44.8 Note 8

See 7.2.13.2 for note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

7.2.45 Paragraph 51c

Brooklyn Papyrus, page 3, lines 23 to 24

kt: ḥḏw, jbnw, ḫɜw nw ḥmt kɜ. srf ḥr mn. nḏ snʿʿ ḥr mw nw bdd(*w-kɜ*). *ftt, srf ḥr mn qmyt. wt ḥr.s*.

Another (remedy): onion[1], alum, long fragments of filings of copper[2]. Crush smoothly in liquid of the watermelon[3]. A vegetal tampon[4], heat in *mn* (resin)[5]. Apply a dressing (lit. bandage) with it.

7.2.45.1 Note 1

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.45.2 Note 2

The ingredient *ḫ3(w)w n(y)w bj3* appears in the *Ebers Papyrus*, for example, in Ebers 634, line 21, which Lalanne & Métra (2017:163) have translated as *rognures de fer* (iron filings). It must be noted, however, that the word *bj3* can be used as an alternative word for 'copper' (*ḥmt*). One learns from Harris (1961:56) that small flakes of copper, which were retrieved from hammering copper into ingots, were used medicinally, and referred to as *ḫ3w nw*  . The ingredient  was used in enemas, ointments, and under bandaging and appears as an ingredient in several of the medical papyri (Von Deines & Grapow 1951:410).

7.2.45.3 Note 3

See 7.2.28.1 for note on the watermelon (*bddw-k3*) for Paragraph 46k.

7.2.45.4 Note 4

The word *ftt* appears to mean a 'vegetal tampon'. Lalanne & Métra (2017:239) refer to it as *tampon ou mêche, charpie végétale, bourre*. It is a wad of shredded vegetal matter formed into padding.

Sauneron (1989:78) says that Breasted studied the word *ftt* and that it is a sort of vegetal tampon which absorbs liquids and can be inserted into a wound or orifice. This padding is used to soak up the ingredients in the liquid, and it is then placed on the wound, or inserted into an orifice in the case of an enema.

The regular determinative for *ftt* is  (see Hannig 2006:326; Von Deines & Grapow 1959:210), but in the *Brooklyn Papyrus* the determinative  is used instead, confirming its vegetal composition. The plant of which this vegetal tampon was made was called *dbjt* but its identity remains unknown. The connection between the words *ftt* and *dbjt* was made by Luring[190], according to Sauneron (1989:78). Luring suggested the cotton plant for the identity

[190] Sauneron's reference is Luring's *Die über die medizinischen Kenntnisse der alten Aegypter berichtende Papyri* (1888:18).

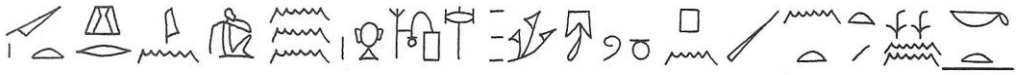
of *dbjt*, but this can be ruled out because there was no cotton grown in Egypt prior to 200 CE (in Sauneron 1989:78). Ebbell, according to Jonkheere (1947:65), rather felt that *dbjt* was cotton but felt that it was from a plant such as those of the *Epilobium* genus (willowherbs) that resembled cotton and could perform the same function (Jonkheere 1947:65).

7.2.45.5 Note 5

See 7.2.18.8 for the note on *men* resin (*mn qmyt*) for Paragraph 46a.

7.2.46 Paragraph 51d

Brooklyn Papyrus, page 3, line 24



kt: nnt nt sd pnw. nḏ snᶜᶜ ḥr mw. swr jn ḫr(j) dmt.

Another (remedy): root of tail-of-the-mouse plant[1]. Grind smoothly in water. (For) drinking by the one who has the bite wound.[2]

7.2.46.1 Note 1

See 7.2.18.4 for the note on tail-of-the-mouse plant (*sd pnw*) for Paragraph 46a.

7.2.46.2 Note 2

The ingredients and method of use of this treatment are identical to that of Paragraph 54g.

7.2.47 Paragraph 51e

Brooklyn Papyrus, page 3, line 24

kt: ᶜᶜm: 1/8, sᶜm: 1/8, ḥs(ɜ)w nn ᶜwɜ(yt): 4 hnw. swr qᶜ.

Another (remedy): *aam* plant: $^{1}/_{8}$, white wormwood plant[1]: $^{1}/_{8}$, mucilage of fermentation: four hin. (For) drinking (and) vomiting.

7.2.47.1 Note 1

See 7.2.38.4 for the note on the white wormwood plant (*sʿm*) for Paragraph 48c.

7.2.48 Paragraph 52

Brooklyn Papyrus, page 3, line 24

jrr n ḫr(j) dmt sdbw: ḥmɜ(t) mḥ(t), (n)ḥḥ. nḏ snʿʿ. wt ḥr.s.

A preparation (lit. that which is prepared) for the one bitten by the sedeb[1] (snake): salt of the north[2], sesame oil[3]. Crush smoothly. Apply a dressing (lit. bandage) with it.

7.2.48.1 Note 1

For the sedeb snake see 5.2.7 (Paragraph 20) and 6.3.2 (for its possible identity).

7.2.48.2 Note 2

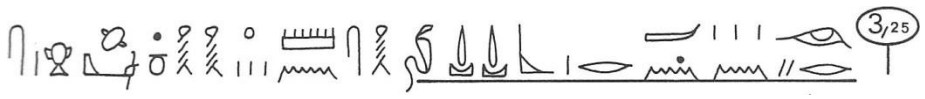
See 7.2.13.2 for note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

7.2.48.3 Note 3

See 7.2.35.2 for note on sesame oil (*nḥḥ*) for Paragraph 47g.

7.2.49 Paragraph 53

Brooklyn Papyrus, page 3, line 25



jrr n psḥ n rbḏɜḏɜ: ḥsmn, (n)ḥḥ. wt ḥr.s.

A preparation (lit. that which is prepared) against the bite of the ro-bedjadja[1] (snake): natron[2], sesame oil[3]. Apply a dressing (lit. bandage) with it with it.

7.2.49.1 Note 1

For the ro-bedjadja snake see 5.2.22 (Paragraph 35) and 6.3.14 (for its possible identity).

7.2.49.2 Note 2

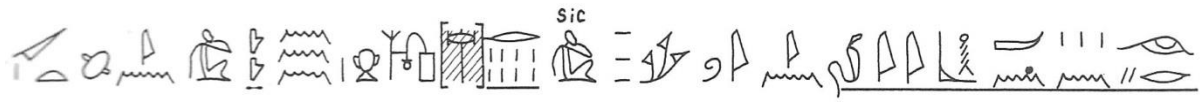
See 7.2.24.2 for note on natron (*ḥsmn*) for Paragraph 46g.

7.2.49.3 Note 3

See 7.2.35.2 for note on sesame oil (*nḥḥ*) for Paragraph 47g.

7.2.50 Paragraph 54a

Brooklyn Papyrus, page 3, line 25



jrr n psḥ n ḥby: jnjw: $^{1}/_{8}$. *nḏ snᶜᶜ ḥr mw:* $^{1}/_{64}$ + $^{1}/_{64.}$ *swr jn wḫd dmt*.

A preparation (lit. that which is prepared) against the bite of the heby[1] (snake): *iniou*[2] plant: $^{1}/_{8}$. Crush smoothly in water: $^{1}/_{64}$ + $^{1}/_{64.}$ (For) drinking by the one suffering the bite.

7.2.50.1 Note 1

The heby snake does not appear in the extant portion of text. It is possible that this may be the name of a snake from one of the lost first 13 paragraphs (see 9.2.1.2).

7.2.50.2 Note 2

The *iniou* plant () is unidentified. There is no mention of it in Von Deines & Grapow (1959). There is a reference in Hannig (2006:86) to *jnj* with a meaning of 'plant', but the hieroglyphic spelling is different, namely  .

Lalanne & Métra (2017:231) list two similar names to *jnjw*. One is *jnyt* () with an alternative determinative of  , and which Lalanne & Métra (2017:231) transcribe as *noyau* (a pit, stone, kernel or nut), and to which Von Deines & Grapow (1959:38) give a possible meaning of 'date pip'. The other word is *jnwn* ( (the *inoun* plant). The latter is listed in Von Deines & Grapow (1959:38) and Erman & Grapow (vol. 1, 1926:94) as an unknown plant and it is only used once – in Ebers 592. See also 7.2.22.2.

7.2.51 Paragraph 54b

Brooklyn Papyrus, page 3, line 25

kt: š(ɜ)ms. nḏ snᶜᶜ ḥr bɜq wɜḏ. jmj jn wḫd dmt.

Another (remedy): *shemes* (plant) (pellitory?)[1]. Grind smoothly in fresh moringa oil. (For) drinking[2] by the one suffering the bite.

7.2.51.1 Note 1

For *š(ɜ)ms* Sauneron (1989:80) has *plante*-chemes. He says that this is an unidentified plant of which one uses the roots, leaves and seeds. This information also appears in Von Deines & Grapow (1959:477–479). The identical spelling appears on the *Berlin Ostracon (5570)*.

Figure 74: Mount Atlas daisy (*Anacyclus pyrethrum*)[191]

[191] Photograph of the Mount Atlas daisy (*Anacyclus pyrethrum*): 'Anacyclus pyrethrum kz11.jpg' by Krzysztof Ziarnek, Kenraiz is used under Creative Commons license CC BY-SA 4.0.

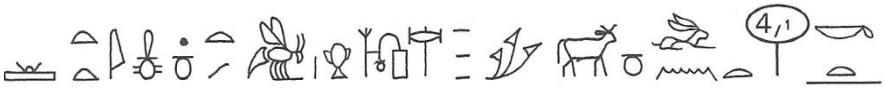
It is indicated by Lalanne & Métra (2017:33, 47) that *šɜms* is *pyrèthre* (*Anacyclus pyrethrum*), in Ebers 38 and 61. Hannig (2006:869) gives a possible but uncertain identification of the plant *šɜms* as *Anacyclus pyrethrum* (pellitory, Mount Atlas daisy, Spanish chamomile – see Figure 74 above). The plant's uses include a medication that is ingested, an inhalant, and an ointment.

7.2.51.2 Note 2

The scribe has used the word *jmj* instead of the usual word *swr*.

7.2.52 Paragraph 54c

Brooklyn Papyrus, page 3, line 25 and page 4, line 1



kt: twn. nḏ snᶜᶜ ḥr bjt mjtt.

Another (remedy): *toun* (plant)[1]. Crush smoothly in honey (or) the likes (thereof)[2].

7.2.52.1 Note 1

The word *twn* is listed in Hannig (2006:990) as a plant used *für einen geflochtenen sack* (for mesh bags), and as *heilpflanze für geschwüre, schwellungen und knochenbrüche* (a healing plant for ulcers, swellings and fractures); and he says it may possibly be a type of acacia (*Vachellia* or *Senegalia* species*)*.

Baum (1988:176) discusses a plant named  (*tjwn*), which she says is the same as the plant named *dwn* from the Graeco-Roman Period, and / or a plant with the name of *twn* / *ṯwn* / *dwn* which uses the determinative  (M2 in Gardiner 1957:478). In Erman & Grapow (vol. 5, 1931:242) one finds this identical hieroglyphic spelling of  under the entry for '*tjwn*', which Erman & Grapow describe as *Baum im garten* (a garden tree). They refer the reader to an entry with another spelling of *twn* with variant hieroglyphic spellings of  and  and a variety of possible determinitives, namely  ,  , and  . The plant appears several times in the *Ebers Papyrus* and Lelanne & Métra (2017), like Sauneron, leave

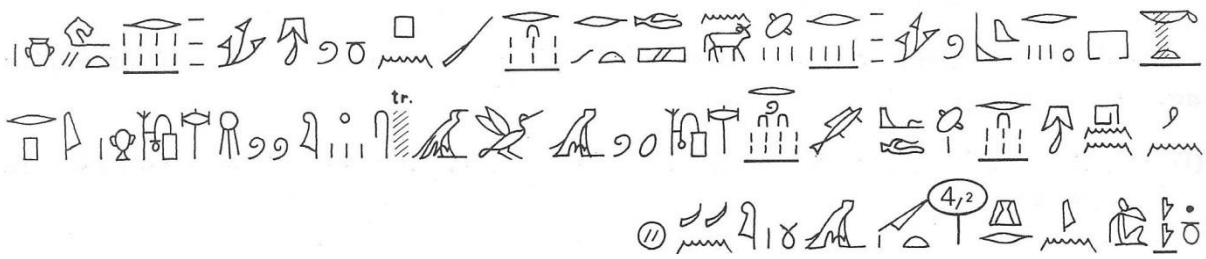
this plant as unidentified. This unidentified plant is also found in Von Deines & Grapow (1959) under the name of *ṯwn*. The plant here in the *Brooklyn Papyrus* is clearly the same plant. However, its spelling in this paragraph of  offers a new variant that can be added to the list of known spellings of the word *ṯwn*. Ebbell accepted the *ṯwn* plant as *Vachellia seyal* (*Acacia seyal*, the red acacia) (Von Deines & Grapow 1959:563), a tree that grows from Egypt down to Senegal in the west and Kenya in the east. The determinative does rather resemble acacia leaves, so his identification is a possibility. Loret, on the other hand, thought that *ṯwn* may perhaps be *Ceruana pratensis* (Baum 1988:178), a flowering plant of the daisy family and which is native to the Sahara and the Sahel. This, says Baum (1988:178), would be plausible if the habitat of the *ṯwn* plant was limited to that of *Ceruana pratensis*, which it does not appear to be. Baum (1988:178–179) believes that new investigations into the possible identity of this plant should be made, taking into consideration the vegetation distribution of the desert. Baum (1988:179) suggests that the form and uses of the *ṯwn* plant may be better suited to a plant such as *Leptadenia pyrotechnica*, a shrub found in desert areas belonging to the family Asclepiadaciae and an important medicinal plant in various folk medicines[192]. Sadly the *ṯwn* plant must remain unidentified for now.

7.2.52.2 Note 2

There is no instruction given on how to use this remedy. However, it is highly likely that it was intended to be swallowed as specified for Paragraphs 54a, 54b, 54d, 54e, 54f, 54g and 54h.

7.2.53 Paragraph 54d

Brooklyn Papyrus, page 4, lines 1 to 2



[192] https://prota4u.org/database/ (accessed 30th January 2020).

kt: pr(t)w qbw: $^{1}/_{3}$*, ḥs n ḫmt dsrt:* $^{1}/_{16}$*, sd pnw:* $^{1}/_{8}$*, ḥɜty n hnn:* $^{1}/_{16}$*, ḥs ꜥdw:* $^{1}/_{128}$*. nḏ snꜥꜥ (mj) swḥwt m pɜjstw šww. nḏ snꜥꜥ ḥr jrp:* $^{1}/_{64}$ + $^{1}/_{64}$*. swr jn ḫr(j) dmt. m šs mɜꜥ(t), ḥḥ n sp.*

Another (remedy): seeds of the *qebu* plant[1]: $^{1}/_{3}$, excrement of a red cow: $^{1}/_{16}$, tail-of-the-mouse plant[2]: $^{1}/_{8}$, heart of a gazelle / deer: $^{1}/_{16}$, excrement of a grey mullet[3]: $^{1}/_{128}$.Crush finely (like) eggshell[4] into dry granules[5]. Crush smoothly in wine: $^{1}/_{64}$ + $^{1}/_{64}$. (For) drinking by the one who has the bite wound . It is truly excellent, a million times (lit. 'a million of time').

7.2.53.1 Note 1

See 7.2.18.9 for the note on the *qebu* plant (*qbw*) for Paragraph 46a.

7.2.52.2 Note 2

See 7.2.18.4 for the note on the tail-of-the-mouse plant (*sd pnw*) for Paragraph 46a.

7.2.53.3 Note 3

For the identification of *ꜥdw* Hannig (2006:177) refers one to *ꜥḏw* (Hannig 2006:179), the *meeräsche* or Buri-*fisch*: the grey mullet (see Figure 75 below).

Figure 75: Grey mullet (*Mugil cephalus*)[193]

This fish is also identified by Lalanne & Métra (2017:234) as the mullet (*Mugil cephalus*). The fat of the mullet is used in Ebers 656.

7.2.53.4 Note 4

This phrase *nḏ snꜥꜥ* (*mj*) *swḥwt* (crush finely [like] eggshell), also appears in Paragraphs 46e and 54f. See 7.2.22.6 for the note on this phrase.

[193] Photograph of the grey mullet (*Mugil cephalus*): 'Mugil cephalus Minorca' by Roberto Pillon is used under Creative Commons license CC BY 3.0.

7.2.53.5 Note 5

Sauneron (1989:80) interprets the word *swḥwt* as *reduire* (reduce), so that the line *swḥwt m pɜjstw šww* in his translation reads as: *réduire en granules sec* (reduce to dry granules). The current translation prefers to use the following interpretation: *nḏ snᶜᶜ* (*mj*) *swḥwt* (crush finely [like] eggshell), *m pɜystw šww* (into dry granules). The meaning of the word *swḥwt* would otherwise be left unexplained.

The word *pɜjst* is a tricky one in this context, as the meanings given in the dictionaries do not fit. However, Sauneron (1989:80) says that Ebbell believed that this word could be translated as 'granulation'. This interpretation makes sense in the context of this paragraph as it describes the state of the product.

7.2.54 Paragraph 54e

Brooklyn Papyrus, page 4, line 2

kt: qbw, ḥs n ḫmt kmt. nḏ snᶜᶜ ḥr mw. swr jn ḫr(*j*) *dmt.*

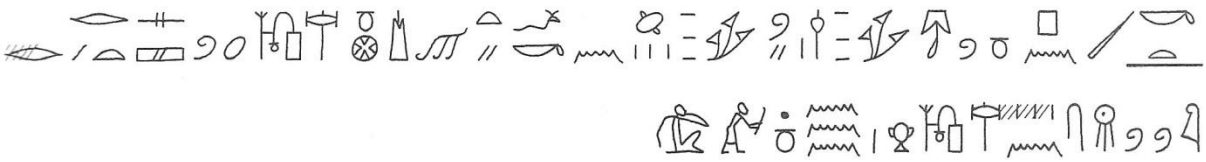
Another (remedy): *qebu* plant[1], excrement of a black cow. Crush smoothly in water. (For) drinking by the one who has the bite wound.

7.2.54.1 Note 1

See 7.2.18.9 for the note on the *qebu* plant (*qbw*) for Paragraph 46a.

7.2.55 Paragraph 54f

Brooklyn Papyrus, page 4, line 2



kt: šd pnw, ḥḏw, ḥs n fktj jwnw nḏ snᶜᶜ (*mj*) *swḥwt sšrt, r šww.sn. nḏ snᶜᶜ mw. ᶜtḫ, swr.*

Another (remedy): tail-of-the-mouse plant[1], onion[2], excrement (?) of the *fekty* (shorn priest)[3] of Heliopolis. Crush finely (like) eggshell[4] to dehydrate (lit. cause to dry), until they are dried. Grind smoothly in water. Filter (and) drink.

7.2.55.1 Note 1

See 7.2.18.4 for the note on the tail-of-the-mouse plant (*sd pnw*) for Paragraph 46a.

7.2.55.2 Note 2

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.55.3 Note 3

As Sauneron (1989:81) says, a *fkty* is considered to be a 'shorn priest'. Sauneron (1989:81) says that in the *Hearst Papyrus* (17^{11}) the sign 𓌳 is an abbreviation for *jswt* in the phrase *jswt n šhy*, from which one could understand 'lost hair' or something similar. However, having said this, Sauneron (1989:81) does not believe that one can quite escape the translation of 𓌳 as *ḥs* (excrement), and he leaves it as such in his translation, with a question mark. The current translation is in agreement with this.

The ingredient *jswt* is discussed in Von Deines & Grapow (1959:61–62) and it appears that this word may well refer to 'fallen hair', in other words, the shorn hair of the priest. However, 𓌳 does not appear in the spelling of *jswt*. One may feel alarmed at the thought of human excrement in a remedy to be drunk, albeit that of a priest, but one can understand Sauneron's hesitation over the intended meaning of 𓌳 in this particular instance.

The use of human excrement does occur in medical papyri and examples are cited in Von Deines & Grapow (1959:358). It may be that the more familiar meaning of 𓌳 as *ḥs* is intended here, and not an unusual meaning such as *jswt n šny*.

7.2.55.4 Note 4

See 7.2.22.6 for the note on this phrase which also appears in Paragraphs 46e and 54d.

7.2.56 Paragraph 54g

Brooklyn Papyrus, page 4, lines 2 to 3

kt: nnt nt sd pnw. nḏ snᶜᶜ ḥr mw. swr jn wḫd dmt.

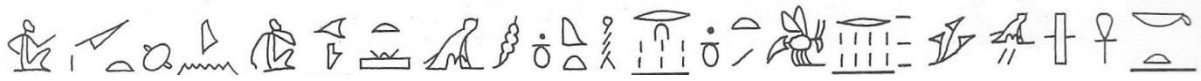
Another (remedy): root of tail-of-the-mouse plant[1]. Grind smoothly in water. (For) drinking by the one suffering the bite.

7.2.56.1 Note 1

See 7.2.18.4 for the note on the tail-of-the-mouse plant (*sd pnw*) for Paragraph 46a.

7.2.57 Paragraph 54h

Brooklyn Papyrus, page 4, line 3



kt: ᶜnḫ-jmj: $^{1}/_{8}$*, bjt,* $^{1}/_{16}$*, ḥ(n)qt nḏmt:* $^{1}/_{16} + {}^{1}/_{64}$*. swr jn wḫd dmt.*

Another (remedy): berries of the chaste tree[1]: $^{1}/_{8}$, honey: $^{1}/_{16,}$ sweet beer[2]: $^{1}/_{16} + {}^{1}/_{64.}$
(For) drinking by the one suffering the bite.

7.2.57.1 Note 1

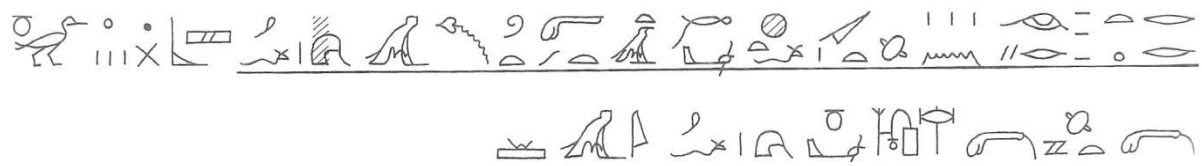
See 7.2.32.1 for the note on the berries of the chaste tree (*ᶜnḫ-jmj*) for Paragraph 47d.

7.2.57.2 Note 2

See 7.2.7.6 for the note on sweet beer (*ḥnqt nḏmt*) in Paragraph 43a.

7.2.58 Paragraph 55

Brooklyn Papyrus, page 4, line 3



rrt jrr(*t*) *n wḏd dmt, ḫft mḥ tɜ mtwt m tp.f: šb*(*t*)*, ḥsɜ ṯɜy, sjn ṯɜy. nḏ snᶜᶜ. šnj tp.f jm.*

A remedy[1] to be prepared for the one suffering the bite, when the venom (lit. this) takes hold of his head: melon[2], male mucilage[3], male clay[4]. Grind smoothly. Cover[5] his head with it.

7.2.58.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.58.2 Note 2

According to Von Deines & Grapow (1959:485–486), the word *šbt* refers to a gerkin, and Sauneron (1989:82) sees it as a marrow. Hannig (2006:878) tentatively identifies the plant as *Cucumis melo,* a melon.

7.2.58.3 Note 3

Hannig (2006:602) gives a possible meaning of *männlicher Pflanzenschleim* (male plant mucilage), for the ingredient *ḥsɜ ṯɜy*. Male plant mucilage also appears in treatments in the *Berlin Papyrus* (149) and *Ebers Papyrus* (199) as remedies to be taken, and in Ebers treatments 565 and 650 as an ingredient to be used with a bandage (Von Deines & Grapow 1959:367).

7.2.58.4 Note 4

The spelling of the word *sjn* in the *Brooklyn Papyrus* is a little unusual in that it contains the sign 𓈖 which does not occur in the known spellings of the word in the *Ebers, Hearst* or *London* medical papyri (Von Deines & Grapow 1951:425).

The material *sjn* appears to be a finer type of clay than *ɜḥt,* which is coarser alluvial clay (Harris 1961:199), and Harris (1961:204) concludes that it is distinct from both *ɜḥt* and *qɜḥ* which both refer to Nile mud.

For this ingredient to be named ‘male clay’ is certainly not unusual because certain minerals had a gender associated with them. Sauneron (1989:82) cites two examples mentioned by Jonkheere, one being *ṯɜy n msdmt* (male galena), and the other being male clay, as we find here in the *Brooklyn Papyrus*. The latter example, namely *sjn ṯɜy,* is also found in Ebers 661.

7.2.58.5 Note 5

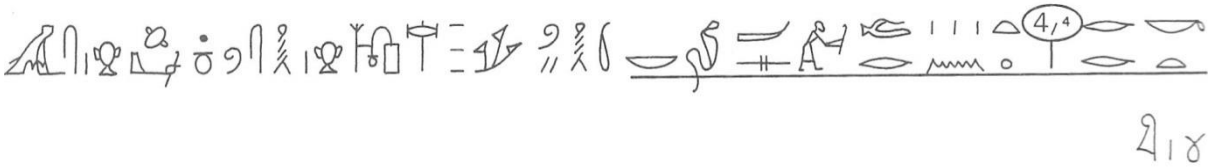
The signs  are a little puzzling at first because it is not clear what the word is intended to be. It does, in fact, seem to be an abbreviation for the verb *šnj*.

Possible meanings of this word provided by Faulkner (1986:267–268) include 'enclose', 'surround', encircle' and 'cover'. The latter meaning was found in the *Kahun Papyrus* (7, 54) in relation to covering a diseased eye. Hannig (2006:891) supplies the following possible meanings for the word: *umkreisen* (to circle [around]), *umgeben* (to surround), *umschießen* (to enclose), and *bedecken* (to cover).

The translation for the word *šnj* of 'cover' does fit the context well, and collectively, all these possible meanings have a magical overtone which is not out of place with this treatment.

7.2.59 Paragraph 56a

Brooklyn Papyrus, page 4, lines 3 to 4



kt rrt n dr psḥ ḫfȝw nb: tḫwy. nḏ snᶜᶜ ḥr ḥs(ȝ). wt ḥr.s. m šs mȝᶜ(t).

Another remedy[1] to drive out the bite of any snake: peas[2]. Crush smoothly in mucilage[3]. Apply a dressing (lit. bandage) with it. It is truly excellent.

7.2.59.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.59.2 Note 2

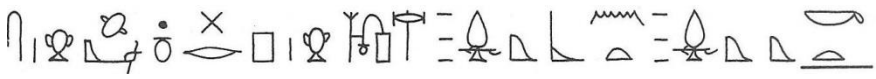
See 7.2.14.1 for the note on peas (*tḫwy*) for Paragraph 45b.

7.2.59.3 Note 3

See 7.2.15.2 for the note on mucilage (*ḥsȝ*) for Paragraph 45c, and 7.2.58.3 for the note on male mucilage (*ḥsȝ ṯȝy*) for for Paragraph 55.

7.2.60 Paragraph 56b

Brooklyn Papyrus, page 4, line 4



kt: qq nt b(ɜ)q. nḏ snᶜᶜ ḥr p(ɜ-w)r. wt ḥr.s.

Another (remedy): nut?[1] of the moringa[2]. Crush smoothly in vinegar[3]. Apply a dressing (lit. bandage) with it.

7.2.60.1 Note 1

The word *qq* with a meaning of 'nut' does not appear in Von Deines & Grapow (1959), or in the dictionaries of Faulkner or Hannig. It is therefore not clear how Sauneron (1989:83) arrives at a meaning of *noix* (nut), but it is not the leaves, flowers, roots or wood of the moringa that are used, so it seems that the nut may be an obvious alternative. Sauneron does not comment on this word so he may well be familiar with it.

In Hannig (2006:935) one finds a word *qq* with a possible meaning of *gefäß* (a vessel / container). It is possible that this may be the meaning which is intended here as a pod is a container of sorts for nuts and seeds. Hannig (2006:935) also provides a possible meaning for a word *qɜqɜ* as a tree. However, in Erman & Grapow (vol. 5, 1931:71) there is the word *qqtj* () for which a possible meaning of *rinde* (rind, bark) is given. It may be that the spelling here in the *Brooklyn Papyrus* of  is an abbreviation for and that the ingredient used in this treatment is bark of the moringa. Moringa bark is used in modern-day herbal remedies and is removed from the younger branches of the tree.

7.2.61.2 Note 2

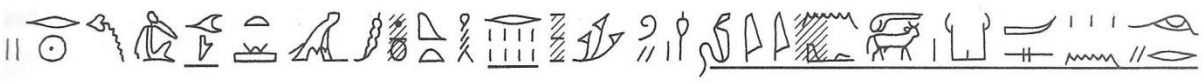
See 7.2.9.3 for the note on moringa (*bɜq*) for Paragraph 43c.

7.2.61.3 Note 3

See 7.2.38.2 for the note on vinegar (*sɜ-wr*) for Paragraph 48c.

7.2.61 Paragraph 57

Brooklyn Papyrus, page 4, line 4



jrr(*t*) *n ps*(*ḥ*) *kȝ-nʿy: ḥḏw:* $^{1}/_{8}$, *ḥ*(*n*)*qt nḏmt:* $^{1}/_{16} + {}^{1}/_{64}$. *swr qʿ r hrw 2.*

A preparation (lit. that which is prepared) against the bite of the ka-nay[1] (snake): onion[2]: $^{1}/_{8,}$ sweet beer[3]: $^{1}/_{16} + {}^{1}/_{64}$. (For) drinking (and) vomiting for two days.

7.2.61.1 Note 1

The snake of Paragraph 14, whose name is missing from the text, is said to be of the same family as the ka-nay and the khetwatet (khet-outet) snakes (see 5.2.1.7). The ka-nay is quite possibly a snake from one of the lost 13 paragraphs, especially if a treatment for its bite is being included in this treatment section of the Papyrus.

7.2.61.2 Note 2

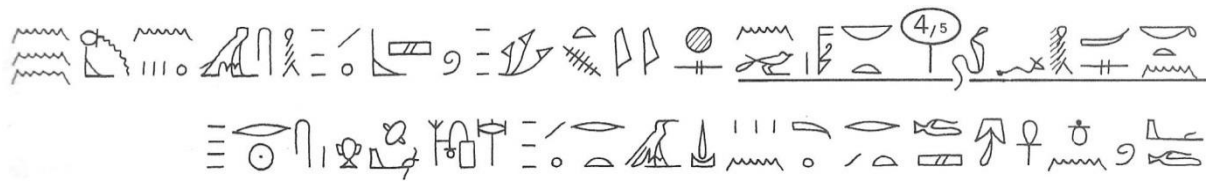
See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.61.3 Note 3

See 7.2.7.6 for the note on sweet beer (*ḥnqt nḏmt*) in Paragraph 43a.

7.2.62 Paragraph 58

Brooklyn Papyrus, page 4, lines 4 to 5



kt n ps(*ḥ*) *ḫf*(*ȝw*) *nbt qsn: ḫ*(*ȝ*)*sjt, wšb*(*t*), *ḥsmn wʿb, ʿd n ʿnḫ*(*t*) *dšrt, dqw n ḏȝrt. nḏ snʿʿ. wt ḥr.s r hrw 4.*

Another (remedy) for the bite of any venomous snake: bryony[1], *oushebet* (mineral)[2], pure natron[3], fat[4] of a red goat, powder[5] of carob pods[6]. Crush smoothly. Apply a dressing (lit. bandage) with it for four days.

7.2.62.1 Note 1

An alternative spelling for the word *ḫɜsjt* is *ḫsɜjt*. Lalanne & Métra (2017:249) and Faulkner (1986:197) both give possible, but uncertain meanings of 'bryony' for *ḫɜsjt*. Hannig is more certain with his meaning of *ḫɜsjt* as *Bryonia dioica*, and Dawson (1934:45) also believes that this word refers to *Bryonia dioica* (see Figure 76 below). An extensive listing for *ḫɜsjt* is made by Von Deines & Grapow (1959:391–393). This plant was used in remedies to be ingested, in a fumigation preparation, in a salve and under bandaging. Their identification of *ḫɜsjt* as *Bryonia dioica* concurs with the name given by Hannig. Interestingly, Maimonides (in Rosner 1979:211–212) says that one of the plant's Arabic names was *'inab al-hayya* (serpent grape).

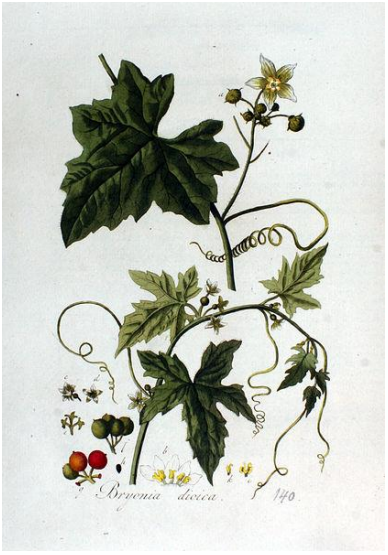


Figure 76: Bryony (*Bryonia dioica*)[194]

Manniche (1989:81) comments that bryony is poisonous – it can paralyze the central nervous system if used in large doses (Estes 2004:141). Be that as it may, Dioscorides says that two teaspoonfuls of bryony taken in a drink could be given to those bitten by vipers, and the leaves, fruit and roots of the plant could be used with salt and applied to rotten ulcers, gangrene, and surgical wounds; and this mixture of salt and parts of the bryony plant was also

[194] Illustration of the bryony (*Bryonia dioica*) plant by Christiaan Sep (1807). Image in the public domain.

useful in bursting abscesses and reducing inflammation (Osbaldeston & Wood 2000:737–738). Bryony also appears as an ingredient in poultices and in an ointment to cure headaches (Manniche 1989:82).

7.2.62.2 Note 2

See 7.2.44.7 for the note on the *oushebet* mineral (*wšbt*) for Paragraph 51b.

7.2.62.3 Note 3

See 7.2.24.2 for the note on natron (*ḥsmn*) for Paragraph 46g.

7.2.62.4 Note 4

See 7.2.33.1 for the note on fat (*ꜥḏ*) for Paragraph 47e.

7.2.62.5 Note 5

Sauneron (1989:241) interprets the signs  to indicate the word *dgm* (pulp) and not *dqw* (powder / flour). However, the signs  only occur as a spelling of the word *dqw* and not of *dgm* (Faulkner 1986:316; Hannig 2006:1060; Von Deines & Grapow 1959:582; Lalanne & Métra 2017:262). The word *dqw* with a meaning of 'pulp' does not appear in any of these sources. Sauneron uses the same interpretation of *dgm* as 'pulp' in Paragraphs 59 and 63b, but not in Paragraph 76 (Sauneron 1989:102) where he translates it as *farine* (flour) in *farine d'orge* – barley flour. See 7.2.95.3.

7.2.62.6 Note 6

Another botanical ingredient around which there is an identification debate is *ḏ3rt*. Some identify it as the colocynth (*Citrullus colocynthus*) and others align it with the pod of the carob tree (*Ceratonia siliqua*)[195]. According to Manniche (1989:86, 91), recent research indicates that the word *ḏ3rt* is more likely to refer to the carob tree.

Sauneron (1989:83) seems to share Dawson's belief that *ḏ3rt* is the colocynth. He translates *dqw n ḏ3rt* as *pulpe de coloquinte* (pulp of the colocynth). Aufrère (1983:29) says that

[195] Although the carob tree is native to Mediterranean woodlands, it grew in ancient Egyptian gardens (Gale *et al* 2000:338) and its appearance is attested from the Twefth Dynasty (Murray 2000c:612). The name for the carob pod, according to Gale *et al* (2000:338) was first written on a pair of pottery vessels found in a First Dynasty tomb belonging to a Saqqaran official named Hemaka. Unfortunately Gale *et al* do not mention the name allocated to the pod on the vessels.

Dawson's belief that *ḏ3rt* is the colocynth seems to be based on the fact that he believed that the determinative ◦ represented the globular fruit, and, despite its weaknesses, Dawson's belief was followed by several Egyptologists. Lefebvre, too, appears to have followed Dawson's belief that *ḏ3rt* is the colocynth (Darby *et al* 1977:699).

Hannig (2006:1070) lists both the colocynth and the carob as possibilities for the word *ḏ3rt*. This word appears in the *Ebers Papyrus*, and in Ebers 184, *jmj n*(*y*) *ḏ3rt* is translated as *pulpe de caroube* (carob pulp), by Lalanne & Mètra (2017:75). In Ebers 17 and 217 the recipes use *ḏ3rt*. In Ebers 8 one finds the same ingredient that is used in the *Brooklyn Papyrus*, Paragraph 58, namely *dqw n*(*y*) *ḏ3rt* which Lalanne & Mètra (2017:13) translate as *poudre de carobe* (powder of carob).

Lalanne & Mètra (2017:13, footnote 3) mention Dawson's identification of *ḏ3rt* as 'colocynth' and also the alignment of *ḏ3rt* with the silique (long, thin pod) (see Figure 77 below) of the carob by Loret and Aufrère, while the carob tree itself is known as *nḏm* (Baum 1988:3; Manniche 1989:85), or *noutem* (Loret 1892:88). Loret (1892:88) comments that the pod is used as a determinative for the carob tree *nḏm* as it is a pod-bearing tree.

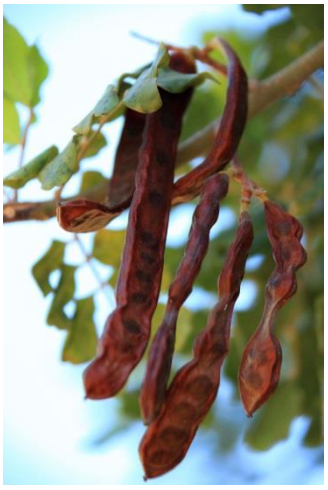


Figure 77: Pods of the carob (*Ceratonia siliqua*)[196]

A sweet beer could be made from the carob, according to Manniche (1989:86). Sweet beer, as opposed to beer, does appear as an ingredient several times in the *Brooklyn Papyrus* recipes.

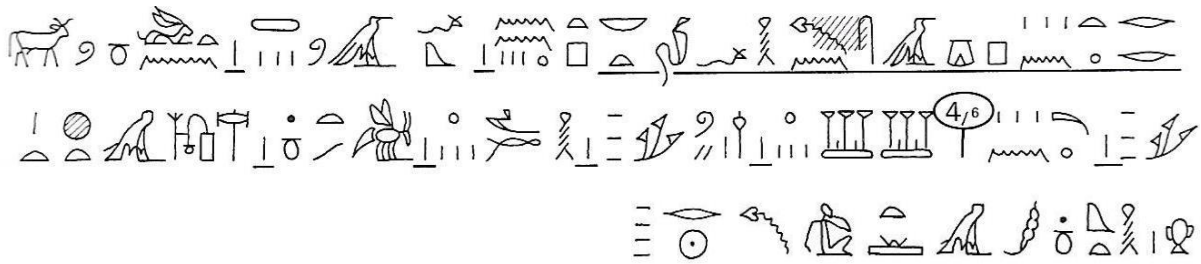
[196] Photograph of the carob pods (*Ceratonia silique*): 'ripe carob pods on carob tree' by Vera Kratochvil is used under Creative Commons license CC0 1.0.

A differentiation was made between beer made of barley and beer made from other products, or containing another product, such as a sweetening agent, resulting in ‘sweet beer’.

The pharmacological properties of carob assist in stopping diarrhoea and vomiting (Nunn 2002:215). Medicinally, the Egyptians used remedies containing carob as an anthelminthic, to stop diarrhoea, to treat eye diseases, coughs, and under a bandage to aid in wound healing (Manniche 1989:87). Estes (2005:142) says that carob beans were used frequently for diseases of the anus (*Chester Beatty VI Papyrus*), gut and for urinary tract disorders.

7.2.63 Paragraph 59

Brooklyn Papyrus, page 4, lines 5 to 6



rrt n pg[*ɜ*]*s n ḥf*(*ɜw*) *nbt: tpnn*: 1, *fqɜw*: 1, *twn*: 1, *dqw n šɜšɜ*: 1, *ḥḏw*: 1, *ḥmɜ*(*t*) *mḥ*(*t*): 1, *bjt*: 1. *nḏ snᶜᶜ m ḫt* (*wᶜ*)*t ḥr ḥ*(*n*)*qt nḏmt*. *swr qᶜ r hrw 4*.

A remedy[1] for the spit of any snake: cumin[2]: 1, cakes[3]: 1, *toun* (plant)[4]: 1, powder of valerian[5]: 1, onion[6]: 1, salt of the north[7]: 1, honey: 1. Crush smoothly together in a homogenous mixture (lit. ‘in one thing’)[8] in sweet beer[9]. (For) drinking (and) vomited for four days.

7.2.63.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.63.2 Note 2

See 7.2.7.3 for the note on cumin (*tpnn*) for Paragraph 43a.

7.2.63.3 Note 3

'Cake' appears in numerous recipes in the *Ebers Papyrus*. Generally, these remedies are either prepared in the form of a cake or require soaked cake (Von Deines & Westendorf 1961:306).

7.2.63.4 Note 4

See 7.2.52.1 for the note on the *toun* plant (*twn / ṯwn*) for Paragraph 54c.

7.2.63.5 Note 5

The word *šɜšɜ* has a general meaning of 'fruit' (Hannig 2006:870). However, Dawson suspected that it might refer specifically to the plant valerian (Von Deines & Grapow 1959:481) and this opinion appears to be generally accepted.

Figure 78: Valerian (*Valeriana officianalis*)[197]

Unfortunately his reason for this opinion is not given in Von Deines & Grapow. Both Sauneron (1989:84) and Lalanne & Métra (2017:255) translate *šɜšɜ* as 'valerian' (*Valeriana officinalis* – see Figure 78 above).

7.2.63.6 Note 6

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

[197] This illustration of valerian (*Valeriana officinalis*) is in the public domain. Source: Wikimedia Commons.

7.2.63.7 Note 7

See 7.2.13.2 for the note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

7.2.63.8 Note 8

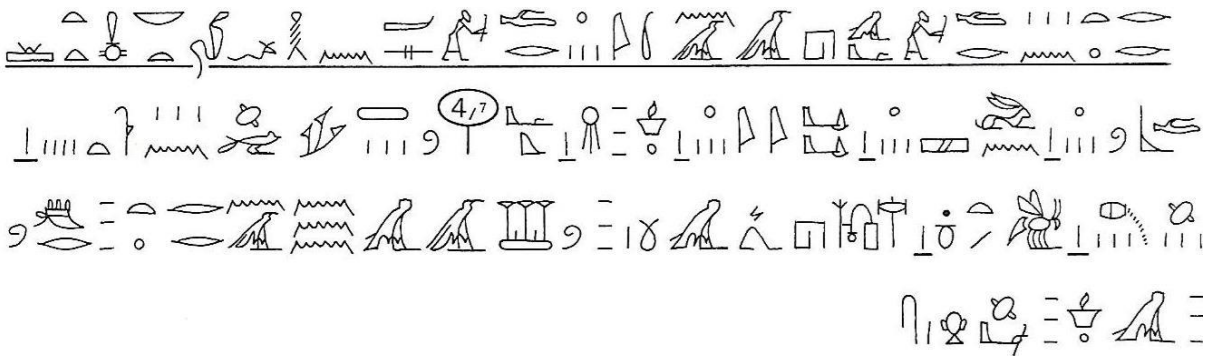
The phrase *m ḫt wʿt* literally means 'in one thing'. Here, in the *Brooklyn Papyrus* in Paragraph 59, one finds an abbreviated version of the phrase:  , to which Sauneron gives a meaning of *en une masse homogène* (in a homogenous mass). In other words, the treatment ingredients must be mixed together to form a cohesive mixture. An example of an unabbreviated writing of this phrase is given in Ebers 9, line 18 is  , to which Lalanne & Métra (2017:13) also give a meaning of *en une masse homogène* (in a homogenous mass). It is written out in full in hieroglyphics in Ebers 13, lines 7 to 8:  .

7.2.63.9 Note 9

See 7.2.7.6 for the note on sweet beer (*ḥnqt nḏmt*) for Paragraph 43a.

7.2.64 Paragraph 60

Brooklyn Papyrus, page 4, lines 6 to 7



rrt dr mʿhɜnɜtj [?] *dr ps(ḥ) n ḫf(ɜw) nbt mjtt: d(ɜ)bw:* 1, *wnš:* 1, *djdj:* 1, *snṯr šw:* 1, *ʿqw jsw n rnpt jfdw:* 1, *ḥsbw jt:* 1, *bjt:* 1. *nḏ snʿʿ hɜj m šs. wšm mw nɜ rrt ḏr m snṯr. wt ḥr.s.*

A remedy[1] to dispel out (some condition)[2] and to drive out the venom[3] (lit. 'bite') of any snake and the like: figs[4]: 1, raisins[5]: 1, Nubian red ochre[6]: 1, dried terebinth resin[7]: 1, old loaves, four years old (lit. 'of four years'): 1, roughly crushed (grains)[8] of barley: 1, honey: 1.

Crush finely (so that) it falls well (lit. excellently). Mix water and all these ingredients (lit. this remedy to its limit) in terebinth. Apply a dressing (lit. bandage) with it.

7.2.64.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.64.2 Note 2

The word written here  (*mᶜḥɜnɜtj*) is completely unknown. It must refer to some sort of condition caused by the bite. Sauneron (1989:84) feels that it may be a word of Semitic origin, saying that it could possibly be a loan word from the Hebrew מַחֲלָה (*mhnt*), meaning 'ailment' or 'infirmity',which, although rather vague, offers a general frame of reference. Because of the context, since 'spit' is specifically mentioned in the preceding treatment (see Paragraph 59), Sauneron (1989:84) would like to connect this word to a skin ailment caused by contat with the venom, but he has to admit that spit does not usually affect healthy skin.

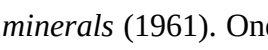
7.2.64.3 Note 3

In line with this argument (see 7.2.64.2 above), Sauneron (1989:85) feels that the signs  might represent the word *pg*(*ɜ*)*s*,[198] meaning 'spit' rather than *psḥ,* meaning 'bite', or, indirectly, 'venom'. Sauneron's preference for the use of the word *pg*(*ɜ*)*s* (spit) instead of *psḥ* (bite) may then provide the connection to a possible skin condition. However, this condition may not necessarily be caused by the presence of venom on the skin, because damage to the tissue comes from haemotoxins or cytotoxins that have been introduced into the body via a bite, for example. It may even be due to infection surrounding the bite wound itself. Since it is not possible to determine the meaning of the unknown word, it is probably better to read *psḥ* rather than *psg*.

7.2.64.4 Note 4

The word *d*(*ɜ*)*bw* is translated by Sauneron (1989:84) as *sable(?)-debou,* although he does query the meaning 'sand'. The common words for 'sand' are *šᶜy* and *nš* and one does not find the words *dɜb* or *db* in Harris's extensive *Lexicographical studies in ancient Egyptian*

[198] For variant spellings of *pgɜs* (*psg*, *psgɜ*) see Hannig (2006:313).

minerals (1961). One does, however, find  as a variant spelling for *ḏ3b* (fig) in the *Hearst*, *Chester Beatty VI* and *Berlin* medical papyri (Von Deines & Grapow 1959:571). This is the *Ficus carica* (Hannig 2006:1041), the common fig.

The fig, according to Murray (2000c:623) was first cultivated in the eastern Mediterranean, and was present in ancient Egypt from early on, as seeds and whole figs found at the sites of Predynastic Maadi and Buto indicate (Murray 2000c:624).

Manniche (1989:103) says that in Coptic medicine, a skin inflammation was treated with fig leaves, natron, honey and sulphur. The remedy that here in Paragraph 60 of the *Brooklyn Papyrus* is placed on the skin under a bandange, perhaps gives more credence to Sauneron's argument that the unknown word (*mʿḥ3n3tj*) refers to a skin disorder of some sort (see note 7.2.64.2 above).

In ancient Egypt, leaves, fruit and wood ash of the fig were used in medicinal preparations (Murray 2000c:623). According to Estes (2004:145), the medicinal use of figs was non-selective but often appeared in treatments for gut, skin and urinary tract disorders. Darby *et al* (1977:709) add wound dressings, enemas and suppositories to this list of medicinal uses. The fruit of figs are used in the *Brooklyn Papyrus* in two wound treatments – here in Paragraph 60 and again in Paragraph 61b.

7.2.64.5 Note 5

Raisins were used in remedies for bladder complaints, and swollen bellies (Murray 2000b:581), and for intestinal disorders (Estes 2004:154). In the *Brooklyn Papyrus* raisins are used only in treatments for bite wounds.

7.2.64.6 Note 6

The conclusion reached by Harris (1961:157) regarding the meaning of the word *djdj* suggests that *djdj* is a special type of red ochre found at Aswan (Elephantine) and in Nubia. He writes about an article by Gauthier regarding the red clay of Elephantine. This material *djdj* appears in the myth of the destruction of mankind, in which *djdj* is brought from Elephantine and mixed with beer, to which it imparts a red colour (Harris 1961:156). Guilhou (2010:4), in discussing the *Myth of the heavenly cow*, which incorporates the myth of the

destruction of mankind, says that the red colour of the beer is as a result of mixing it with Nubian haematite, also called 'red ochre'. Nederhof (2015:4) refers to *djdj* as 'haematite' in his transliteration and translation of the myth of the destruction of mankind, while Aufrère (1997:132) refers to *hematite rouge d'Éléphantine (djdj)* (red haematite of Elephantine [*djdj*]) in his account of the myth of the destruction of mankind.

Originally *djdj* may have referred to fuller's earth[199]. This is based on Gauthier's argument that *dj* is the Coptic ϯ and that *djdj* therefore relates to the Coptic ϯϯ (fuller's earth), and is apparently a red variety (Harris 1961:156). Dawson, on the other hand, believed that *djdj* was red ochre, which is a soft form of haematite, and was found in Nubia. It was rare and not considered to be the same as the more commonly found haematite. The treatment in Ebers 197 calls for *dd n*(*y*) *ꜣbw* (*djdj* of Elephantine) (Lalanne & Métra 2017:83) as does Ebers 576 (Lalanne & Métra 2017:153).

Darby *et al* (1977:529) translate the following from Sauneron (1968) from his article '*Les inscriptions Ptolémaïques de temple de mout à Karnak*'. The quotation comes from a text on Mut's gate at Karnak: 'in honour of the goddess, beer, red with Nubian ochre, is poured in these days of the Feast of the Valley…'. However, Sauneron (1989:84) translates *djdj* here in Paragraph 60 of the *Brooklyn Papyrus* as 'haematite' and not 'Nubian ochre'.

The positioning of *djdj* in the Chester Beatty list indicates that it is a mineral. In the list it is named *djdj n tꜣstj* which confirms it as a mineral found in Nubia. Despite Gauthier's argument that *djdj* may be a red fullers earth, Harris (1961:157) points out that Dawson's identification of *djdj* as a form of red ochre found in Nubia is more probable, because fuller's earth is not well-known in Egypt and is usually an olive green colour.

One may consider referring to *djdj* as 'Nubian red ochre' so as to differentiate it from *mnšt* (red ochre), which also obtains its red colouring from haematite, an iron-rich mineral.

7.2.64.7 Note 7

See 7.2.35.1 for the note on terebinth (*snṯr*) for Paragraph 47g.

[199] Fuller's earth is a mineral mixture consisting mainly of clay (www.merriamwebster.com/dictionary/fuller's%20earth) (accessed online 17th December 2019).

7.2.64.8 Note 8

Sauneron (1989:84) translates the sign 𓎛 as ‘mucilage’. It could be that he is seeing this sign 𓎛 (*ḥs*), which generally refers to excrement, as an abbreviation for *ḥsꜣ* (mucilage). However, it is entirely possible that the sign 𓎛 may represent the word *ḥsb* (fragment) instead, in which case *ḥsbw jt* would be ‘fragments of barley’.

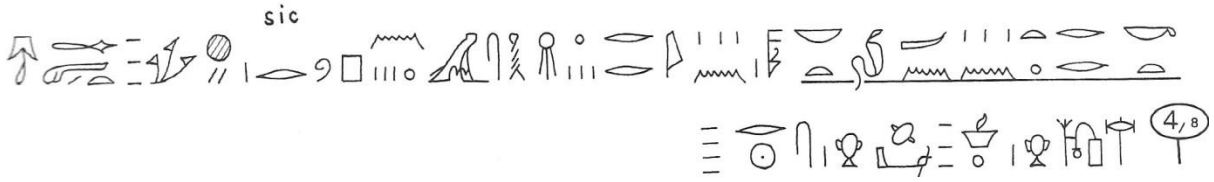
Hannig (2006:603) lits the sign 𓎛 as an abbreviated form of the word *ḥsb*, with a possible meaning of *bruch* (breakage or fracture). This abbreviated spelling is also to be found in Von Deines & Westendorf (1962:633). There are no examples of the sign 𓎛 being used as an abbreviated spelling, or even appearing in the spelling of the word *ḥsꜣ* in Hannig (2006:602) or in Von Deines & Grapow (1959:364). It is therefore more likely that it represents the word *ḥsbw* with a meaning of ‘cracked’ or ‘roughly crushed’.

The phrase *ḥsꜣ n*(*y*) *jt* (mucilage of barley) does appear in Ebers 696, but it does not use the sign 𓎛 in its spelling.

The *Brooklyn Papyrus* uses this phrase *ḥsbw jt* again in Paragraph 85d, where, coincidentally, the word *ḥsꜣ* is also to be found with a full spelling in the phrase *ḥsꜣ n ꜥwꜣyt*. Nowhere in any examples of the use of the word *ḥsꜣ* (mucilage) in the *Brooklyn Papyrus* is an abbreviated spelling used (see Paragraphs 45c, 45d, 55, 56a, 73, 50a, 51d, 72b, 75b, and 89). This current translation, therefore, prefers to interpret the sign 𓎛 as *ḥsb*.

7.2.65 Paragraph 61a

Brooklyn Papyrus, page 4, lines 7 to 8



kt rrt n psḏ ḫfꜣw nbt: qsw n j(*ꜣ*)*rr*(*t*) *šwt, ḥsmn, pwrḫt ꜥꜣ, nḏ snꜥꜥ ḥr snṯr. wt ḥr.s r hrw 4.*

Another remedy[1] for the bite of any snake: stalks[2] of dried grapes[3], natron[4], *pekhet*(?)[5] of the donkey (plant). Crush finely in terebinth[6]. Apply a dressing (lit. bandage) with it for four days.

7.2.65.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.65.2 Note 2

One finds the word *qs* in Hannig (2006:934) with possible meanings of *knochen* (bone), and *gräte* (fish bone). The tiny stalk attached to each individual grape resembles a small bone, for which the word *qs* is an apt description.

7.2.65.3 Note 3

This abbreviated form of the word *jꜣrrt* is not found in the examples from other medical papyri given in Von Deines & Grapow (1959:10–11).

7.2.65.4 Note 4

See 7.2.24.2 for the note on natron (*ḥsmn*) for Paragraph 46g.

7.2.65.5 Note 5

An ingredient with the name of *pwrḫt ꜥꜣ* does not appear in Von Deines & Grapow (1959) and there must be a spelling error here, as Sauneron (1989:85) points out. It is clear from the determinative that the name refers to a plant, and he translates this as *pekhet d'âne* (*pekhet* of the donkey). Sauneron (1989:85) does query the name of this ingredient, referring to the only similar example which is in a treatment in Ebers 334 where it is written as *pḫt ꜥꜣ* which Lalanne & Métra (2017:115) translate as *pekhet d'âne* (*pekhet* of the donkey). In Sauneron's opinion the word is visibly influenced by the Coptic *prḫ*, which he gives in French as *s'épanouir* (to bloom, blossom, or flourish), used when speaking of a leaf or flower.

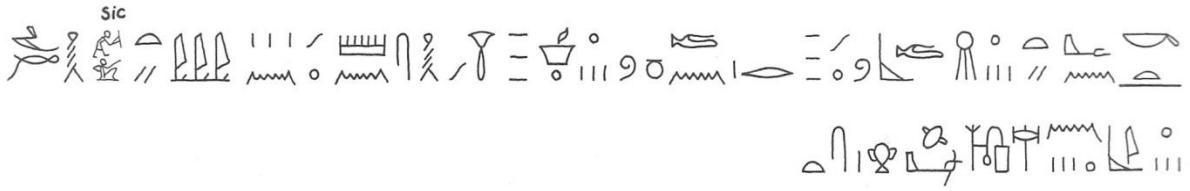
According to Hannig (2006:308), *pḫt ꜥꜣ* has the meaning of a plant or a fruit. This seems to be a rather uncommon ingredient, with only one listing in the major known medical papyri, aside from being given here in the *Brooklyn Papyrus*. Perhaps the plant gets its descriptive name from being frequently eaten by donkeys.

7.2.65.6 Note 6

See 7.2.35.1 for the note on terebinth (*snṯr*) for Paragraph 47g.

7.2.66 Paragraph 61b

Brooklyn Papyrus, page 4, line 8



kt: ꜥntyw šw, d(ɜ)bw, rdnw, snṯr wɜḏ, ḥsmn n sḥtj, ḥmɜ(t) mḥ(t), jbnw. nḏ snꜥ. wt ḥr st.

Another (remedy): dried myrrh[1], figs[2], laudanum(?)[3], fresh terebinth[4], natron of the oasis[5], salt of the north[6], alum. Crush finely. Apply a dressing (lit. bandage) with it.

7.2.66.1 Note 1

Sauneron (1989:86) translates the word *ꜥntyw* as *oliban*, which is synonymous with 'frankincense', a gum-resin which comes from the *Boswellia* species. According to Lucas (1937:27) some scholars (Naville, Lieblein and Jéquier) believed *ꜥntyw* to be 'frankincense'.

However, 'myrrh', which is also gum-resin, is a reddish-brown colour with a yellowish dust (see Figure 79 below) (Lucas 1937:27), and Dixon (1969:57) notes that on a mural at Deir el-Bahri a heap of a red-coloured substance is labled *ꜥntyw wɜḏ* (fresh *ꜥntyw*). On the other hand, frankincense is a light yellow or yellow-brown colour with a whitish dust (Lucas 1937:28).

Erman & Grapow (vol. 1, 1926:206) say that *ꜥntyw* is a resin and the word is traditionally translated as 'myrrh', while Hannig (2006:160) gives possible meanings of *Myrrhenharz* (myrrh resin), and *Myrrhe* (myrrh) (*Commiphora* sp.), and Faulkner (1986:44), too, provides a possible meaning of 'myrrh'.

Commonly used in traditional medicines for stomach problems, myrrh is burnt in Ethiopia and Somalia in houses to deter snakes (Brendler *et al* 2010:89).

Figure 79: Myrrh[200]

Myrrh's pharmacological properties are as a local anaesthetic, and an antifungal and antibacterial agent (Brendler *et al* 2010:91). The inti-inflammatory and wound healing properties of myrrh are well known (Brendler *et al* 2010:91), and as an ingredient in wound treatments it may, therefore, have helped to provide a small measure of pain relief to snakebite victims – according to Brendler *et al* (2010:90) the analgesic effect of myrrh has been validated in a study by Dolora *et al* (1996).

7.2.66.2 Note 2

The word *dꜣbw* also appears in Paragraph 60, see note 7.2.64.4. Here, again, Sauneron gives the word a possible meaning of *sable*-debou (*debou* sand).

7.2.66.3 Note 3

It is not clear how Sauneron arrives at a meaning of 'laudanum' for *rdnw* for, sadly, he leaves no note. Perhaps he knew the word from its use in a text unknown to us. The word does not appear as a medicinal ingredient in Von Deines & Grapow (1959), or in the dictionaries of Hannig (2006) and Erman & Grapow (1926, 1928, 1929, 1930, 1931). If it is laudanum, this ingredient must not be confused with 'ladanum' (*jbr*) which is the resin of *Cistus villosus*, var. *cretious* (Nunn 2002:154, Von Deines & Grapow 1959:24), while 'laudanum' is a tincture of opium.

The poppy (*Papaver somniferum* – see Figure 81 below) is the source of opium, which is obtained as an exudate from the seed head. The use of opium in ancient Egypt is still a

[200] Photograph of myrrh: '100g of myrrh resin' by Gaius Cornelius is released into the public domain. Source: Wikimedia Commons.

subject of debate. Serpico & Whyte (2000:404) say that the scholar Merrillees proposed that the opium trade had reached ancient Egypt by the time of the Eighteenth Dynasty.

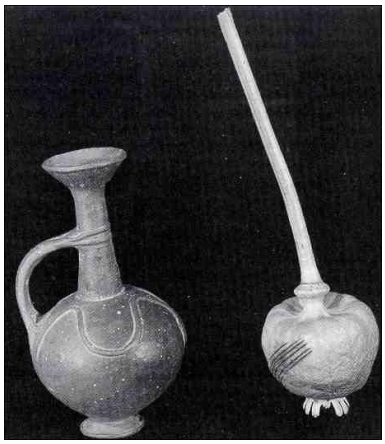


Figure 80: Cypriot base ring juglet (left)[201]

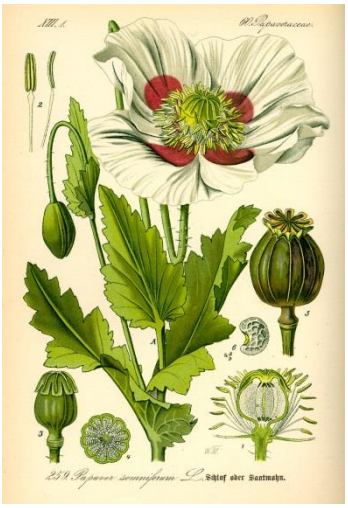


Figure 81: Poppy (*Papaver somniferum*)[202]

Strouhal *et al* (2014:90–91) say that poppy was cultivated in Egypt in the later periods and that prior to this, during the Eighteenth Dynasty, it was imported from Cyprus in little vessels that resembled 'upside-down poppy heads' (see Figure 80 above).

7.2.66.4 Note 4

See 7.2.35.1 for the note on terebinth (*snṯr*) for Paragraph 47g.

7.2.66.5 Note 5

As Sauneron (1989:86) points out, there is an unusual spelling here, for the scribe wrote *sḫtj* (oasis dweller), instead of *sḫt*. Hannig (2006:604) gives a possible meaning of 'natron of the oasis' for *ḥsmn n sḫt*. There are three other types of natron used in this Papyrus (Sauneron 1989:86), namely: natron (see Paragraphs 46g, 61a, 64b, 72a, 80a and 100, and the note in 7.2.24.2); pure natron (see Paragraph 58); and red natron (see Paragraph 81, and the note in 7.2.107.1), in addition to natron of the oasis mentioned in this paragraph.

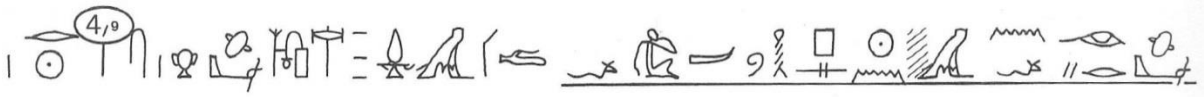
7.2.66.6 Note 6

See 7.2.13.2 for the note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

[201] Photograph of the Cypriot base ring juglet is released into the public domain. Source: Wikimedia Commons.
[202] Illustration of the poppy (*Papaver somniferum*) is released into the public domain. Source: Wikimedia Commons

7.2.67 Paragraph 62a

Brooklyn Papyrus, page 4, lines 8 to 9



wt jrrt n.f m hrw n psḥ.f: dgm. nḏ snᶜ.wt ḥr.s r hrw wᶜ.

A dressing (lit. bandage) to prepare for someone (lit. him) on the same day that he is bitten (lit. on the day of his bite): castor oil plant[1]. Crush finely. Apply a dressing (lit. bandage) with it for one day.

7.2.67.1 Note 1

See 7.2.11.3 for the note on the castor oil plant (*dgm*) for Paragraph 44b.

7.2.68 Paragraph 62b

Brooklyn Papyrus, page 4, line 9

kt m snnw n hrw: smj, mnḥ, ḥmɜ(t) mḥ(t). srf m srf n ḏbᶜ.wt ḥr st.

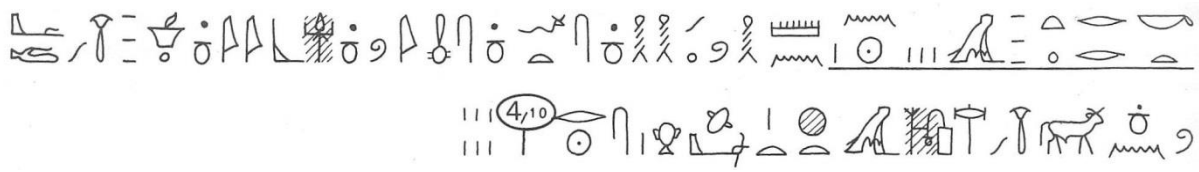
Another (remedy) for the second day: curds, beeswax, salt of the north[1]. Heat to the warmth of a finger. Apply a dressing (lit. bandage) with it.

7.2.69.1 Note 1

See 7.2.13.2 for the note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

7.2.69 Paragraph 62c

Brooklyn Papyrus, page 4, lines 9 to 10



kt rrt m ḫmtnw n hrw: mnḥ, (n)ḥḥ, sft, smj, ȝby, snṯr wȝḏ, ʿd n ḫmt wȝḏ. nḏ snʿʿ m ḫt wʿt. wt ḥr.s r hrw 6.

Another remedy[1] for the third day: beeswax, sesame oil[2], fir(?) oil[3], curds, *aby*-liquid[4], fresh terebinth[5], fresh fat[6] of a cow. Grind smoothly into a homogenous mixture[7] (lit. 'in one thing'). Apply a dressing (lit. bandage) with it for six days.

7.2.69.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.69.2 Note 2

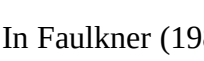
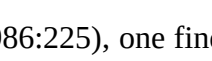
See 7.2.35.2 for the note on sesame oil (*nḥḥ*) for Paragraph 47g.

7.2.69.3 Note 3

Sauneron (1989:87) does not comment on what the word *sft* could possibly mean and leaves his translation as *huile*-sefet. According to Lalanne & Métra (2017:251), the word *sft* is a variant of *sfṯ*, a resin or tar, possibly of pine.

Figure 82: Cilician fir (*Abies cilicica*)[203]

[203] Illustration of the Cilician fir (*Abies cilicica*) by C. A. M. Lindman. The illustration is in the public domain. Source: Wikimedia Commons.

In Faulkner (1986:225), one finds the word  (*sf̱t*) with  (*sft*) as a variant spelling, with the possible meaning of 'oil'. Hannig (2006:756) also lists these different spellings and gives a possible meaning of oil of *ꜥš-Föhre* (*ꜥš* pine). Baum (1988:303–304) and Von Deines & Grapow (1959:110) identify *ꜥš* with *Abies cilicica*, the Cilician or Taurus fir, as does Manniche (1989:64) who says that *sft* is probably the oil. The Cilician fir (see Figure 82 above), a member of the *Pinaceae* family (Serpico 2000:431) is found in mountainous regions in Syria, Lebanon and parts of Turkey (Gale *et al* 2000:349). Fir oil, according to Nunn (2002:140) is one of the seven sacred[204] oils that have actually been identified – several of them have not been positively identified as yet.

7.2.69.4 Note 4

What *ꜣby* or *jꜣby* is, is unknown but it is an ingredient in a liquid form. It does not appear in Von Deines & Grapow (1959) or Erman & Grapow (1926) and it is therefore unlikely that it appears in any of the major known medical papyri.

7.2.69.5 Note 5

See 7.2.35.3 for the note on terebinth (*snṯr*) for Paragraph 47g.

7.2.69.6 Note 6

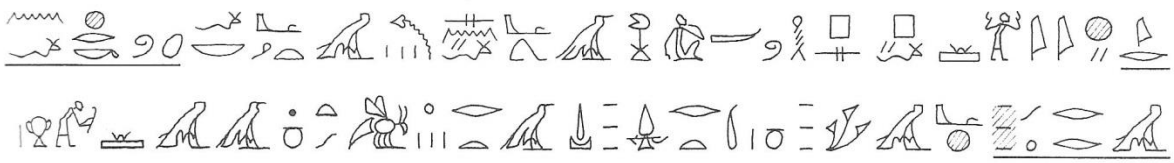
See 7.2.33.1 for the note on fat (*ꜥḏ*) for Paragraph 47e.

7.2.69.7 Note 7

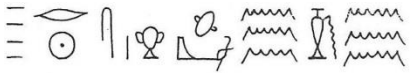
See 7.2.63.7 for the note on the homogenous mixture for Paragraph 59.

7.2.70 Paragraph 63a

Brooklyn Papyrus, page 4, line 10



[204] Certain oils were were offered in the ancient Egyptian temples by the kings (Darby *et al* 1977:777). In addition to this, according to Shaw & Nicholson (2002:210), these oils formed an important part of the religious rituals and were used in the Opening of the Mouth ceremony to anoint the deceased.



jr ḫy pf psḏ ḫ3ᶜ snf m ᶜt.f nb, jr.ḫr.k n.f m rrt: ᶜḫmw nw trt, ḏ3rt, ȝm ḥr mw qbw. bjt. wt ḥr.s r hrw 4.

If this bite is deep[1] (and) blood discharges from every one of his limbs, you will prepare a remedy[2] for him[3]: twigs of willow, carob pods[4], honey. Mix in fresh water. Apply a dressing (lit. bandage) with this for four days.

7.2.70.1 Note 1

See 7.2.44.1 for the note on the deep bite wound for Paragraph 51b.

7.2.70.2 Note 2

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.70.3 Note 3

This same phrase *jr.ḥr.k n.f* is discussed under Paragraph 51b, 7.2.44.2.

7.2.70.4 Note 4

See 7.2.62.6 for the note on carob pods (*ḏ3rt*) for Paragraph 58.

7.2.71 Paragraph 63b

Brooklyn Papyrus, page 4, lines 10 to 11

kt: dqw n ḏ3rt. nḏ snᶜᶜ ḥr bjt, gšw n sjn ṯ3y. wt ḥr.s r hrw 4.

Another (remedy): powder of carob pods[1]. Grind smoothly in honey, (and) lees of male clay[2]. Apply a dressing (lit. bandage) with this for four days.

7.2.71.1 Note 1

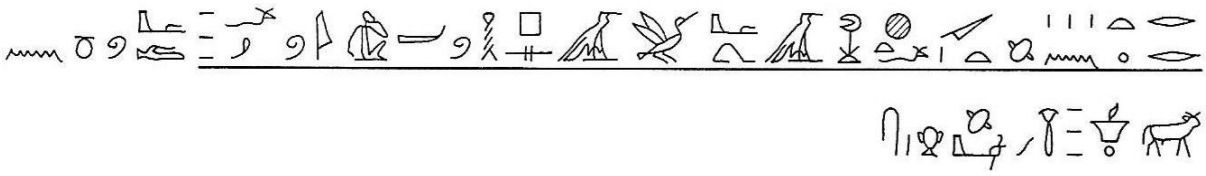
See 7.2.62.5 for the note on powder of carob pods (*dqw n ḏ3rt*) for Paragraph 58.

7.2.71.2 Note 2

See 7.2.58.4 for the note on male clay (*sjn ṯ3y*) for Paragraph 55.

7.2.72 Paragraph 64a

Brooklyn Papyrus, page 4, line 11



rrt n wḫd dmt ḫft ḫ3ˁ pw psḥ jwf: ˁd n ḫmt, snṯr w3ḏ. wt ḥr.s.

A remedy[1] for the one suffering the bite when the bite wound is proud (lit. flesh discharges from the bite wound): fat[2] of a cow, fresh terebinth[3]. Apply a dressing (lit. bandage) with this.

7.2.72.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.72.2 Note 2

See 7.2.33.1 for the note on fat (*ˁḏ*) for Paragraph 47e.

7.2.72.3 Note 3

See 7.2.35.3 for the note on terebinth (*snṯr*) for Paragraph 47g.

7.2.73 Paragraph 64b

Brooklyn Papyrus, page 4, lines 11 to 12

rrt tmtm jrt n.f: sꜣ-wr, ḥmt srf(*t*)*, wšb*(*t*)*, dqw n jm*(*ꜣ*)*, dqw n ḏꜣrt, ḥsmn, t m prš, ꜥntyw šw. dj r.f ḥnꜥ jr n.f kꜣp ꜥšꜣ*(*r*) *šꜣꜥ pf hrw sfḫnw*.

A very finely ground remedy[1] to prepare for someone (lit. him): *sory* minery[2], heated copper[3], *oushebet*-mineral[4], powder of meru[5] (tree), powdered carob pods[6], natron[7], loaf-shaped clump (lit. loaf)[8] of red earth[9], dried myrrh[10]. Apply (lit. give) (this) to him and perform numerous fumigations[11] for him up until the seventh day.

7.2.73.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.73.2 Note 2

See 7.2.7.4 for the note on the *sory* (*sꜣ-wr*) mineral for Paragraph 43a.

7.2.73.3 Note 3

See 7.2.45.2 for the note on copper (*ḥmt*)for Paragraph 51c where long filings of fragments of copper are used.

7.2.73.4 Note 4

See 7.2.44.7 for the note on the *oushebet* mineral (*wšbt*) for Paragraph 51b.

7.2.73.5 Note 5

See 7.2.18.6 for the note on the meru tree (*jmꜣ*) for Paragraph 46a.

7.2.73.6 Note 6

See 7.2.62.5 for the note on powder of carob pods (*dqw n ḏꜣrt*) for Paragraph 58.

7.2.73.7 Note 7

See 7.2.24.2 for the note on natron (*ḥsmn*) for Paragraph 46g.

7.2.73.8 Note 8

Sauneron (1989:89) thinks that there could be a spelling error and that '*t*' may be '*tꜣ*' (earth), rather than 'bread', since the word 'loaf' is only used for vegetative matter (Faulkner

1986:292). However, in this context, it could perhaps refer to a loaf-shaped mass of the ingredient called *prš*, in other words, a loaf-like shape or a loaf of *prš*.

7.2.73.9 Note 9

As Sauneron (1989:89) points out, one cannot find a word *jprš* in the dictionaries, but one does find the word *prš*, which has a possible meaning of 'minium', a red oxide of lead, according to Faulkner (1986:92), Nunn (2002:146) and Lalanne & Métra (2017:238). Hannig (2006:305) gives tentative meanings of *Rötel* (iron oxide), or *Mennige / Bleioxyd* (minium/lead oxide); while Von Deines & Grapow (1959:203) provide possible meanings of red earth or red lead (minium).

Harris (1961:146) examines various opinions regarding the possible meaning of the word *prš* and considers it likely to be a red ochreous earth of a sort that must occur in Egypt, since minium does not appear to have been known in Egypt prior to the Roman Period.

7.2.73.10 Note 10

See 7.2.66.1 for the note on myrrh (*ʿntyw*) for Paragraph 61b.

7.2.73.11 Note 11

It is noted that the ingredients for this remedy are all dry ingredients. They are not mixed with any carrier liquid such as honey, wine or beer.

7.2.74 Paragraph 65a

Brooklyn Papyrus, page 4, line 12

rrt n fy ʿɜ: t(*w*)*t ḥr:* 1, *ḥmɜ*(*t*) *mḥ*(*t*)*:* 1, *ḥ*(*n*)*qt:* $^{1}/_{16} + {}^{1}/_{64}$. *swr qʿ*.

A remedy[1] against (the bite of) a Great viper: image-of-Horus (plant)[2]: 1, salt of the north[3]: 1, beer: $^{1}/_{16} + {}^{1}/_{64}$. (For) drinking (and) vomiting.

7.2.74.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.74.2 Note 2

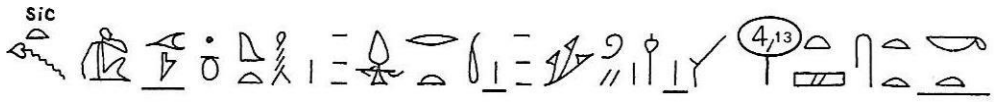
The identity of this plant *twt ḥr* is unknown, and it does not appear in Von Deines & Grapow (1959). Sauneron (1989:90) comments that this is the first mention of this plant, as is that of *twt stš* (image-of-Seth) plant in Paragraph 65b. Neither one appears in the known major medical papyri.

7.2.74.3 Note 3

See 7.2.13.2 for the note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

7.2.75 Paragraph 65b

Brooklyn Papyrus, page 4, lines 12 to 13



kt: t(*w*)*t stš:* 1, *ḥḏw:* 1, *trt:* 1, *ḥ*(*n*)*qt:* $^{1}/_{16}$ + $^{1}/_{64}$. *swr q*ˁ*t*ˀ.

Another (remedy): image-of-Seth (plant)[1]: 1, onion[2]: 1, willow[3]: 1, beer: $^{1}/_{16}$ + $^{1}/_{64}$. (For) drinking (and) vomiting .

7.2.75.1 Note 1

The name of this plant appears here for the first time. It is not listed in Von Deines & Grapow (1959). See 7.2.74.2 above.

7.2.75.2 Note 2

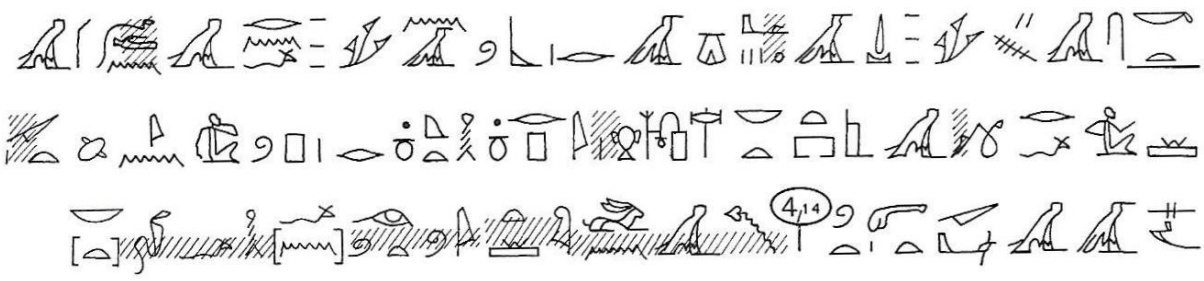
See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.75.3 Note 3

See 7.2.62.6 for the note on carob pods (*ḏɜrt*) for Paragraph 58.

7.2.76 Paragraph 65c

Brooklyn Papyrus, page 4, lines 13 to 14



kt: smᶜt ḏ3ᶜ, g3rbwn3 rn.f m ḏd n ᶜ3m. rd.f m st nbt. nḏ snᶜᶜ jrp ḥ(n)qt r pw. swr jn wḫd dmt. sm3 mtwt m wn-m3ᶜt. jw jr.tw.f [*n*] *ḥf*(*3w*) *nb*[*t*].

Another (remedy): medicinal creeper[1], called (lit. its name is) gulban[2] in the Asiatic language. It grows everywhere (lit. in every place). Crush smoothly in wine or beer, whichever. (For) drinking by the one suffering the bite (and for) destroying the venom for sure. It is to be prepared against (the bite of) any / every snake[3].

7.2.76.1 Note 1

Hannig (2006:763) suggests that *smᶜt* is a *schlingpflanze* (a creeper or climbing plant), but he gives no specific identification, even tentatively. In Von Deines & Grapow (1959:586) the word *ḏ3ᶜ* is identified as an unknown drug, and this is in line with Hannig's (2006:1069) *Arzneistoff* (medicine, medicament). Sauneron (1989:90) translates the phrase *smᶜt ḏ3ᶜ* as *herbe de gesse*, vetch, which does not seem to convey the meaning of the two words as given in Hannig (2006) and Von Deines & Grapow (1959). From this, and since the Asiatic name given in the text does not appear in Hannig or any of the other dictionaries, it would appear that the exact identity of this plant is unknown. The fact that the scribe elaborates on the name of this plant would suggest that it might not have been a well-known plant. Lalanne & Métra (2017:262) give a meaning of *gesse* (vetch) for *ḏ3ᶜ*.

7.2.76.2 Note 2

According to Keimer in his article *Plusieurs antiquités récemment trouvées* in *Bulletin de l'Institut d'Égypte, 28* (1947:117–125) *ḏ3ᶜ* is vetch (*Lathyrus sativus*) – see footnote in

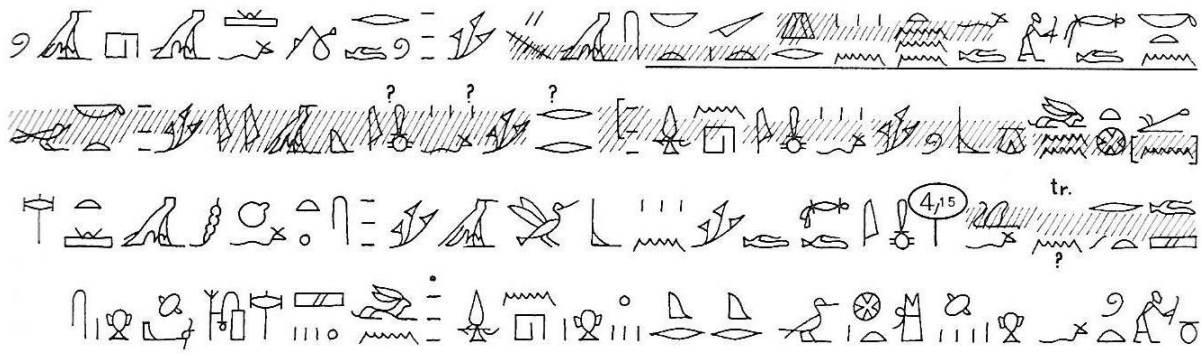
Lalanne & Métra (2017:33), Meyerhof (in Rosner 1979:63)[205] says that the plant referred to by Maimonides as *gīlbān* is the leguminous vetch plant, *Lathyrus sativus* (see Figure 83 below).

Figure 83: Vetch (*Lathyrus sativus*)[206]

In ancient Egyptian it is also called *grš* (Sauneron 1989:230), which is the plant called '*gulban*' by the Semitic people, a name which Meyerhof (in Rosner 1979:63) says is partly Arabic and partly Persian. Darby *et al* (1977:692) say that vetch is known as *gilban* in Arabic and has been known in Egypt since Neolithic times.

7.2.77 Paragraph 66a

Brooklyn Papyrus, page 4, lines 14 to 15



kt, n šd fdt n ḫr(j) dmt nbt: smw rwd.f m hɜw (hb)[n]t. wnn g(ɜ)bw(t).f mj nh(t). (ḥ)rr(wt).f mj qɜyw kt dšrt. […] *n pḥwj.f mj šddw n bɜ(t). stj.f nḏmt. nḏ.tw.f ḥr ḥsw ḥnt, qrqr ḥr nh(t), wnšw. nḏ snᶜ. wt ḥr.s.*

[205] Rosner's book *Moses Maimonides' Glossary of drug names* (1979) includes an English translation of Meyerhof's original French commentary on Maimonides' *Sarh Asma' Al-'uqqar* in *L'Explication des noms de drogues* (1940).
[206] Photograph of vetch (*Lathyrus sativus*): 'Lathyrus sativus 002.jpg' by H. Zell (2009) is used under Creative Commons license CC BY-SA 3.0.

Another (remedy), for removing the sweat of one suffering any bite: the plant[1] (which) grows in the vicinity of Hibis[2]. Its leaves[3] are like (those of) the sycamore. Its flowers[4] are like small red balls (lit. grains / seeds)[5]. The […] of its extremities are like the berries[6] of bushes[7]. Its perfume (lit. smell) is pleasing. It is crushed with pelican droppings, *qerqer*[8] (which are) on the sycamores, raisins. Crush finely. Apply a dressing (lit. bandage) with it.

7.2.77.1 Note 1

The sign  appears to be a strange one to have here but, according to Gardiner (1957:465), it can function as a phonetic determinative for *sm* due to its confusion with  (M21 in Gardiner 1957:482). The identity of the plant described in this Paragraph is unknown as it is not given a name, although it is given a full description.

7.2.77.2 Note 2

The hieratic text is partially damaged but Sauneron restores the word *hbnt* by comparing it to the word in Paragraph 90c, where the spelling is  (*hbnt*).

Sauneron (1989:91) proposes that this name *hbnt* is a variant spelling for the name of Hibis, capital of the 16th nome of Upper Egypt and the nome of the oryx. In Erman & Grapow (vol. 3, 1929:63) one finds a spelling of  (*ḥbnw*), and also (*ḥbnt*). Another name for Hibis, given by Wilkinson (2000:236) is *hbt*. It is highly likely that Sauneron is correct.

7.2.77.3 Note 3

In Hannig (2006:964) one finds a variant spelling  of the word *gꜣbt* which is similar to what one finds in this Paragraph of the *Brooklyn Papyrus*.

7.2.77.4 Note 4

The word *rr* with a meaning of ‘flowers’ does not exist.

However, in both Faulkner (1986:176) and Hannig (2006:598), one finds a word  (*ḥrrt*) with a possible meaning of ‘flower’. There is some damage to the hieratic text, as indicated by Sauneron (1989:91). He comments that half of the word is certain, with the upper sign  appearing as a trace. In front of the signs  there remains the trace of a

vertical sign,  (*ḥr*) rather than (*ḥ*). Sauneron (1989:91) refers the reader to Paragraph 90a (5^{23}) where this word *rr* appears again and here he suggests that there a spelling error (Sauneron 1989:120). However, *rr* may well be a deliberately abbreviated form of the word *ḥrrt* (flower).

7.2.77.5 Note 5

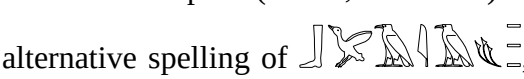
In Faulkner (1986:275), one finds a word *qɜɜ* with a possible meaning of 'grains', and the word  (*qɜy*) is given as an alternative spelling for (*qɜɜ*). For the word *qɜɜ*, Hannig (2006:916) provides a possible a meaning of *pflanzenteil (von Bäumen)* (plant part [of trees]), and Lalanne & Métra (2017:257) provide a similar meaning of *partie – (d'arbre)* (part [of a tree]). This word *qɜɜ* in Von Deines & Grapow (1959:511) is listed as *ein unbekannter Teil* (an unknown part of a plant).

The word *qɜy* is given a possible meaning of *körner* (grains / seeds), in Hannig (2006:916). The translation given by Sauneron (1989:91) is *des boules petites et rouges* (small red balls). Within the context, the word 'grains' or 'seeds' describes the appearance of the flowers as little balls.

7.2.77.6 Note 6

Sauneron (1989:92) says that the word *šdd* is unknown. He suspects that it might be *jšdt,* a general word for 'fruit', as the word is often accompanied by the name of a tree or shrub (see also Von Deines & Grapow 1959:66).

7.2.77.7 Note 7

The word  (*bɜt*) with a possible meaning of 'bush', appears in Faulkner (1986:77), Erman & Grapow (vol. 1, 1926:416) and Hannig (2006:255). The latter also provides an alternative spelling of  , and the word used in the *Brooklyn Papyrus* might well be an abbreviated form.

7.2.77.8 Note 8

The word *qrqr* is listed by Hannig (2006:933) as being obsolete. Its possible suggested meaning is *zustand* (the 'state' or 'condition' of something), for example: *hohen*

Laubbaumes. Erman & Grapow (vol. 5, 1931:66) give the same meaning: *zustand eines hohen Laubbaumes* (the state of tall deciduous trees).

In Sauneron's (1989:92) opinion, the word *qrqr* refers to something on the sycamore tree itself, such as a fruit, based on the use of the preposition *ḥr*. However, there are two known names for the sycamore fruit, namely: *nkʿwt*, which are fruit incised to allow them to ripen without being infested by insects; and *kɜw* – fruit which are not incised. Sauneron (1989:92) hypothesizes that *qrqr* may be something growing on the sycamore, such as a gall.

7.2.78 Paragraph 66b

Brooklyn Papyrus, page 4, line 15

kt: snṯr wɜḏ, ḥmɜt mḥt, mrḥt, bjt. nḏ snʿʿ m ḫt wʿt. nḏ.s jm.

Another (remedy); fresh terebinth[1], salt of the north[2], goose fat[1], honey. Crush smoothly into a homogenous mixture[4] (lit. 'into one thing'). Cover and protect (lit. cover)[5] the person (lit. him) with it.

7.2.78.1 Note 1

See 7.2.35.3 for the note on terebinth (*snṯr*) for Paragraph 47g.

7.2.78.2 Note 2

See 7.2.13.2 for the note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

7.2.78.3 Note 3

Sauneron (1989:93) translates  as *huile*-merhet (*merhet* oil) rather than 'goose fat'. The word *mrḥt*[207] has possible meanings of *Öl* or *Fett* (oil, or fat [from animals or plants]) in Hannig (2006:369) and spellings of  and  .

[207] According to Serpico & White (2000:462) *mrḥt* is the ancient name for what is termed the 'seven sacred oils'.

However, in Von Deines & Grapow (1959:251)  does appear as a variant spelling for *mrḥt*. According to Darby *et* al (1977:757), *mrḥt*, which usually referred to vegetable oils, only referred to animal fat if the animal was indicated along with the word *mrḥt*.

Accordingly, in Ebers 32 one finds the word  translated as *graisse de volaille* (grease / fat of a fowl) (Lalanne & Métra 2017:65), while in Ebers 727 the word *mrḥt* is given as  and translated as *graisse / huille* (grease / oil) by Lalanne & Métra (2017:181). There is a very clear distinction in the *Ebers Papyrus* with the spellings of word *mrḥt* between the general (grease / fat / oil) and the specific (fowl fat)

Darby *et al* (1977:319) say that *mrḥt* (goose fat) and *ꜥḏ* (goose grease) are two interchangeable terms, and Von Deines & Grapow (1959:120) relate that *ꜥḏ*  is a variation of *mrḥt*  . The word  in this paragraph of the *Brooklyn Papyrus* could, in fact, be transliterated as either *ꜥḏ* or *mrḥt*. It may well be that the word  in this paragraph of the *Brooklyn Papyrus* is an abbreviated form of  found in Ebers 32.

7.2.78.4 Note 4

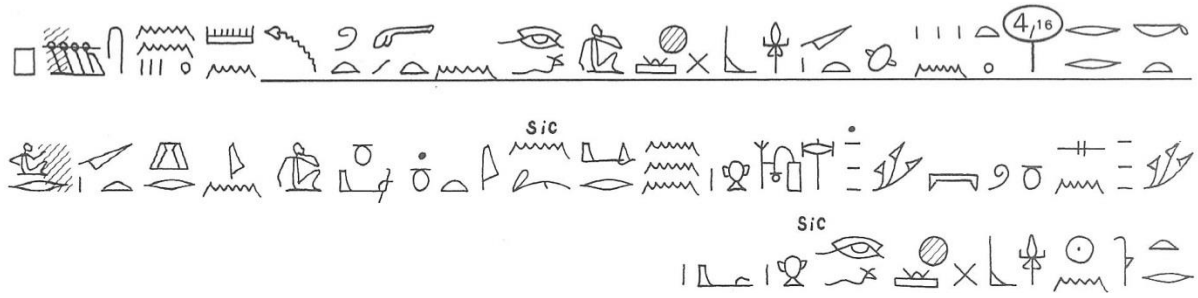
See 7.2.63.7 for the note on the homogenous mixture for Paragraph 59.

7.2.78.5 Note 5

See 7.2.9.4 for the note on the word *nḏ* (cover / protect) for Paragraph 43c.

7.2.79 Paragraph 67

Brooklyn Papyrus, page 4, lines 15 to 16



kt rrt n wḫd dmt ȝbḫ jrt.f n mtwt: mnnn, sšp(t), snw pt. nḏ snᶜᶜ ḥr mw. ḏj r[*n*]*mnt. jt*[*nw / jn*](*ḫ*). *swr jn ḫr*(*j*) *dmt, r tr n ȝbḫ jrt.f* (*snb.f mȝȝ.f*) *ḥr-ᶜwy*.

Another remedy[1] for the one suffering the bite, whose eye received venom[2]: bitumen/resin[3], chate melon[4], blue lotus/mustard[5]. Grind smoothly in water. Place in a filtration pot[6]. (For) filtering. (For) drinking by the one who has the bite wound, the moment (lit. at the time) his eye is affected. (He will recover and see again) immediately[7].

7.2.79.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.79.2 Note 2

None of the possible meanings provided in the dictionaries give a suitable translation for the word *ȝbḫ* in this particular context, where the venom is spat directly into the person's eye. The possible meanings do, however, provide acertain level of connection between two or more things or people.

The word *ȝbḫ* without a preposition can mean 'unite' (Faulkner 1986:2), and additional meanings supplied by Hannig (2006:6) include *mischen* (to mix), and *sammeln* (to collect). This verb *ȝbḫ* is used twice in this paragraph, and when applied to the connection between the eye and the venom, Sauneron (1989:93) provides good translations: in the first instance *reçu* (received), and *attaint* (afflicted), in the second instance.

7.2.79.3 Note 3

Both bitumen[208] and resin are given as possible meanings for the word *mnnn* in Hannig (2006:359), but of the four meanings he gives, only one is not tentative, namely *Erdharz* (asphalt, bitumen). This makes it probable that the ingredient given in the text is bitumen rather than resin. Both bitumen and resin have characteristics in common, namely that they can be rendered into powder form and that they liquefy on heating (Harris 1961:173).

[208] There is very little evidence for the use of bitumen in mummification practices prior to the Graeco-Roman Period (Harris 1961:234), and that the black resinous substance found on mummies of earlier periods called *mnnn* is either resin or a substance mixed with resin (Harris 1961:234).

According to Harris (1961:173), *mnnn* was a product that was obtained from Coptos (ancient Egyptian Gebtu, modern-day Qift) and Pwenet (Punt), and was used in the embalming process as well as being cited in certain texts as a constituent of the 'nine oils' made at Edfu.

Some confusion arises regarding the identification of the product *mnnn* as 'bitumen'. Serpico & White (2000:431) say that bitumen occurred only in limited quantities, but that the ancient Egyptians would have imported it from areas such as the Dead Sea basin, Syria-Palestine, Iran (Luristan and Khuzistan regions) and parts of Iraq (Serpico 2000:455). According to Estes (2004:140), bitumen was not naturally occurring in Egypt. Other products could also be considered as possible identifications for *mnnn*, says Harris (1961:173), such as 'wood pitch', 'wood tar', or 'coniferous oil' or 'resin', although 'bitumen' remains a possibility.

Unfortunately, it would seem that it is not possible to reach a conclusion regarding the exact identity of the product called *mnnn* in the text above.

7.2.79.4 Note 4

Sauneron (1989:93) translates the word *sšpt* as *concombre* (cucumber), and Von Deines & Grapow (1959:505), too, give a possible meaning of *gurke* (cucumber). Hannig (2006:828), on the other hand, gives a meaning of chate (*Cucumis melo*), as does Manniche (1989:95), who says that the Egyptian name for the 'cucumber' is probably *bndt*.

Murray (2000c:634–635) says that the cucumber may well have been confused with the melon (*Cucumis melo*) which comes in a great variety of shapes and sizes, and includes varieties such as the chate melon (which closely resembles a cucumber), musk melon and sweet melon.

The chate melon, which is often confused with the cucumber owing to the shape of the fruit which becomes bent, appears in scenes of offerings in tombs from the time of the Old Kingdom Period onwards, and that there is evidence of this melon from as early as the Predynastic period. It is uncertain whether cucumbers (*Cucumis sativus*) existed in Egypt in the Pharaonic era, although they were known during the Graeco-Roman Period (Murray 2000c:635).

Figure 84: Chate melon (*Cucumis melo* var. *chate*)[209]

The word *sšpt* is more likely to refer to the chate melon (see Figure 84 above) rather than the cucumber.

7.2.79.5 Note 5

Sauneron (1989:93) does not translate the words *snw pt* but simply transcribes them as '*senou* plant'. According to Hannig (2006:775) *snw pt* may be either the blue lotus (*Nymphaea cerulean* – see Figure 85 below) or mustard (*Sinapis alba*) – both identifications are tentative. Aufrére (1987:31, 34) favours the mustard plant (see Figure 86 below) for *snw pt*.

Figure 85: Blue lotus (*Nymphaea cerulea*)[210]

Figure 86: Mustard (*Sinapis alba*)[211]

At this point it is not possible to conclude which plant *snw pt* refers to.

[209] Photograph of the chate melon (*Cucumis melo* var. *chate*) by Dr Harry S. Paris (2009) is in the public domain. No copyright.
[210] Photograph of the blue lotus (*Nymphaea cerulean*): 'Nymphaea caerulea-20091014-RM-115358.jpg' by Reinhold Möller is used under Creative Commons license CC BY-SA 4.0.
[211] Photograph of the mustard (*Sinapis alba*): 'Wacnaf Sinapis alba.jpg' by Saïd Zidat (2015) used under Creative Commons license CC BY-SA 4.0.

7.2.79.6 Note 6

Both Lalanne & Métra (2017:111) and Von Deines & Grapow (1959:528) say that the word *rmnt* refers to a 'filtration pot'. Grapow, in Sauneron (1989:94), explains: this container is separated into two compartments by a horizontal filter. The lower compartment contains the liquid while the upper compartment contains the solid materials. By heating the liquid, the vapour dissolves the substances in the upper compartment, which then pass through the horizontal filter, or strainer, into the liquid below.

However, here in this paragraph, as Sauneron (1989:94) points out, there is no mention of heating, and the ingredients are simply mixed together before being added to the pot. The object called *rmnt* is, therefore, just a simple filter or sieve.

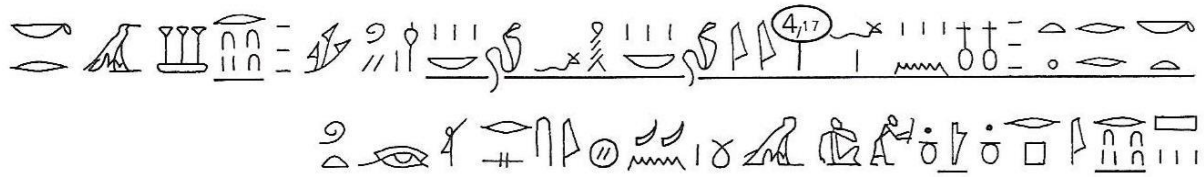
7.2.79.7 Note 7

The meaning here is rather obscure and Sauneron (1989:94) plausibly feels that one can restore the words *snb.f* and *mɜɜ.f* after *jrt.f* to give the meaning: [he will recover / heal and be able to see immediately]. He bases this on analogy with parallel phrases in Paragraphs 46g, 85d, 90a, 98c, 99a and 99c. Sauneron (1989:94) believes that it is possible that the signs  represent a case of haplography, and the scribe intended both *jrt.f* and *mɜɜ.f*.

It is vital, in cases where venom is spat into the eye, to rinse the eye with suitable liquids immeaditely in order to prevent conjunctivitis and other more permenant damage (see 4.3.3.12).

7.2.80 Paragraph 68

Brooklyn Papyrus, page 4, lines 16 to 17



kt rrt nfr nfr n fy nb ḫf(ɜw) nb: ḥḏw: $^{1}/_{32}$*, š(ɜ)kr:* $^{1}/_{32}$*, jrp:* $^{1}/_{64}$*. ʿtḥ. swr. m šs, ḥḥ n sp. j(w).s rs.t(j).*

Another very good remedy[1] against (the bite of) any viper (or) any snake: onion[2]: $^{1}/_{32}$, amber[3]: $^{1}/_{32}$, wine: $^{1}/_{64.}$ For filtering (and) (for) drinking. It is excellent, a million times. It has been tested[4].

7.2.80.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.80.2 Note 2

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.80.3 Note 3

The word *škr* is cautiously translated by Sauneron (1989:94) as *amber jaune* (yellow amber), which is a fossilised resin, an identification made by Daumas (1971:52) with convincing arguments (Sauneron 1989:95). This same ingredient is used again in Paragraph 90c. Sauneron says it is probably yellow amber (see Figure 87 below), which, Pliny[212] informs us, is called *sacal*, by the Egyptians (Sauneron 1989:94).

Figure 87: Amber[213]

Amber may well have been imported into Egypt, along with resin and bitumen, during Predynastic times and was used for jewellery beads and amulets (Serpico 2000:430). The product called *škr / šꜣkr*, which may well be amber, is used in two of the *Brooklyn Papyrus*

[212] A note made by Pliny in his *Natural History*, volume 37, chapter 36 explains the following story about amber and its origins: Nicias (an Atenian politician who lived 470–413 BCE) says that amber is a liquid produced by the rays of the sun, and these rays, at the moment of sunset, strike the surface of the earth with a great force, and leave an unctuous sweat upon it, which the tides of the sea carry off and throw upon the shores of Germany. It is produced in a similar manner in Egypt, where it is called 'sacal' (Bostock & Riley 1955).

[213] Photograph of amber: 'Amber from Bitterfield' by Roland Fuhrmann (2008) is used under the Creative Commons license CC BY-SA 3.0.

treatments: here, in a mixture to be drunk by the patient, and in Paragraph 90c for a wound treatment.

Harris (1961:183) also discusses the word *škr*, saying that it may be of Semitic origin. At the time when Harris's work (*Lexicographical studies in ancient Egyptian minerals*) was published, only three citations of the word were known: namely, in the *Chester Beatty* mineral list, in a list of Asiatic tribute, and in the *London Medical Papyrus* – all three spelled differently (Harris 1961:183)[214]. In any respect, the evidence in the discussion above suggests that the word *škr* / *škl* could well be identified as 'amber'.

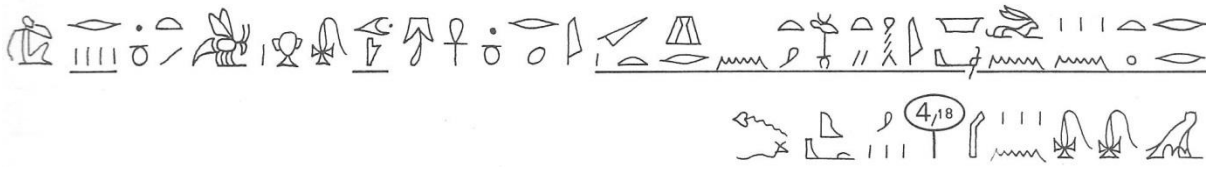
Sauneron (189:95) points out that there is no instruction in this treatment to grind the ingredients together. This suggests that *škr* was already in a powdered form, as amber is not soluble. Alternatively, it may be that the copyist simply omitted the instruction *nḏ snᶜᶜ* (grind smoothly).

7.2.80.4 Note 4

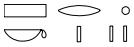
Sauneron (1989:95) says that when a doctor had experience of a treatment, he sometimes marked the sign above the text in the margin. The comment *jw.s rs.tj* in this paragraph most likely serves the same purpose, i.e. to indicate that the treatment has been 'tried and tested'.

7.2.81 Paragraph 69

Brooklyn Papyrus, page 4, lines 17 to 18



[214] These three different orthographies are presented by Daumas (1971:52).

1.  (from the list of Asiatic tribute, *Urk.* IV, 715)
2.  (from the *London Medical Papyrus* 16, 11)
3.  (from the *Chester Beatty Papyrus IV*, 7, 11)

rrt n wn ḥtyt n ḫr(j) dmt: jr(ṯt) ꜥnḫt: $^{1}/_{64}$. *srf ḥr bjt:* $^{1}/_{4}$. *swr m srf n ḏbꜥ. qꜥ.f.*

A remedy[1] to open up the throat of the one who has the bite wound: milk[2] of a goat: $^{1}/_{64}$. Heat with honey: $^{1}/_{4}$. To be drunk at the warmth of a finger. He vomits (it).

7.2.81.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.81.2 Note 2

This is an interesting spelling of the word *jrṯt*. The sign takes the place of or .

There are no examples of this particular spelling in the dictionaries.

7.2.82 Paragraph 70

Brooklyn Papyrus, page 4, lines 18 to 19

rrt n kt fy: qbw: $^{1}/_{4}$. *ȝm ḥr bjt:* $^{1}/_{4}$, *snf ꜥnḫt nḏst:* $^{1}/_{8}$. *jn.tw.f ꜥnḫ, nn smȝ.tw.f. ḥ(n)qt: hn 2. swr qꜥ. dj.tw wȝt n jb pn r mwt.f. m šs mȝꜥt, ḥḥ n sp. jw jr.tw.f n ḫf(ȝw) nbt.*

A remedy[1] against (the bite of) the female viper[2] (lit. ‘the other female one, the viper’): *qebu* (plant)[3]: $^{1}/_{4}$, mix with honey: $^{1}/_{4}$, and the blood of a small (young) goat: $^{1}/_{8}$. It is fetched / brought alive[4], and it shall not be killed. Beer: two hin. (For) drinking (and) vomiting. This kid is set free[5] (to find) its mother. It is truly excellent, a million times. It can be prepared against (the bite of) any snake.

7.2.82.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.82.2 Note 2

Sauneron (1989:95) explains that this type of phrase, used to indicate the female of the species, existed from the Old Kingdom Period. Alternatively, the female of the species could be indicated by simply adding a feminine ending to the masculine word.

7.2.82.3 Note 3

See 7.2.18.9 for the note on the *qebu* plant (*qbw*) for Paragraph 46a.

7.2.82.4 Note 4

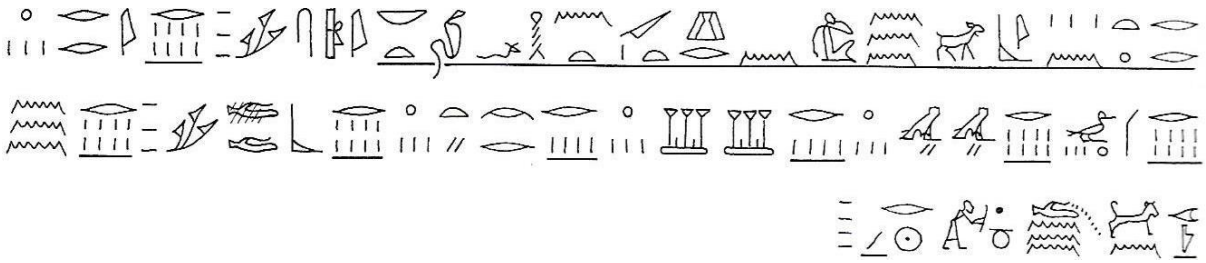
One does not kill the goat because it is the blood of a living goat that is required. This is confirmed by the next line in which the young goat is returned to its mother. According to Sauneron's (1989:96) note, the blood of a living creature is supposed to have stronger powers than that of a slaughtered animal.

7.2.82.5 Note 5

The phrase *rdj wꜣt* means *weg weisen, freigeben* (to show the way, to allow) (Hannig 2006:183). In the context of this paragraph, it is best translated as 'set free'.

7.2.83 Paragraph 71a

Brooklyn Papyrus, page 4, line 19



rrt n jb(*t*) *n ḫr*(*j*) *dmt nt ḥf*(*ꜣw*) *nbt: jsw:* $^{1}/_{8}$, *jꜣrrt:* $^{1}/_{8}$, *qmyt:* $^{1}/_{8}$, *mjmj:* $^{1}/_{4}$, *šꜣšꜣ:* $^{1}/_{4}$, *jrtj:* $^{1}/_{4}$, *bdd*(*w-kꜣ*)*:* $^{1}/_{8}$, *mw:* $^{1}/_{16} + {}^{1}/_{64}$. *sḏr n jꜣdt. ʿtḥ.* (*swr*) *r hrw 4.*

A remedy[1] for the thirst of one who has the bite wound of any snake: reeds[2]: $^{1}/_{8}$, grapes[3]: $^{1}/_{8}$, gum (or resin)[4]: $^{1}/_{8}$, emmer wheat[5]: $^{1}/_{4}$, valerian[6]: $^{1}/_{4}$, carob pods[7]: $^{1}/_{4}$, watermelon[8]: $^{1}/_{8,}$ water: $^{1}/_{16} + {}^{1}/_{64.}$ Expose all night to the dew[9]. Filter. (For drinking) for four days[10].

7.2.83.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.83.2 Note 2

The leaves of the reed were generally used as a diuretic in medicine (Loret 1892:19). However, in this paragraph the reed is used in a treatment to be drunk by the patient in order to alleviate thirst. Unfortunately it is not clear which species of reed this is, although ancient practitioners obviously had known the difference between the species, and how to use each kind. In popular medicine, the roots were used as a diurectic and a diaphoretic[215] (Täckholm & Täckholm 1941:213).

7.2.83.3 Note 3

See 7.2.65.3 for the note on grapes (*jꜣrrt*) for Paragraph 61a.

7.2.83.4 Note 4

It is noted that the type of gum or resin to be used in this recipe is not specified, nor is it clear whether gum or resin is meant. Citing examples from Hannig (2006:926) the type of gum or resin could be stipulated as follows: *qmyt nt šnḏt* (acacia gum, i.e *Vachellia* or *Senegalia* species), *qmyt nt snṯr* (terebinth resin), *qmyt nt ʿntjw* (myrrh), and so forth.

The spelling of the word *qmyt* as  in this paragraph, and also in Paragraph 87b of the *Brooklyn Papyrus*, is unusual. The sign  (G41 in Gardiner 1957:472) rather than  (G38 in Gardiner 1957:471) is ordinarily used either as a phonetic sign or as a determinative in the spelling of this word. There is not one single example in Hannig (2006:925), Von Deines & Grapow (1959:516) or Erman & Grapow (vol. 5, 1931:39) that gives a spelling of the word *qmyt* using this sign  (G38 in Gardiner 1957:471) .

Whenever the word *qmyt* is given in the *Brooklyn Papyrus* in conjuction with the word *mn* to form the name of the ingredient *mn qmyt*, the word *qmyt* does not use this unusual spelling, but rather  .

[215] A diaphoretic is a drug used to induce or increase sweating.
www.merriam-webster.com/dictionary/diaphoretic (accessed on line 17th December 2019).

7.2.83.5 Note 5

The word *mjmj* refers to a cereal crop of some sort, although exactly which one seems to be a point of debate. Hannig (2006:344) lists *mjmj* as possibly being *Durra* or *Sorghum* (*Sorghum bicolor*). Both Sauneron (1989:96) and Lalanne & Métra (2017:240) give a translation of *épeautre* (spelt) for *mjmj*. This is a type of wheat: *Triticum spelta* or *Triticum dicoccum*. However, Murray (2000a:513) points out that the Egyptians did not grow spelt (*Triticum spelta*), and this is confirmed by Darby *et al* (1977:490) and Meyerhof (in Rosner 1979:181).

Spelt does not appear on the list of plant ingredients supplied by Nunn (2002:152) and this list is for botanical ingredients where there is 'considerable agreement for the meaning of the Egyptian word' (Nunn 2002:152). Nunn (2002:13) says that barley and emmer were the main cereal crops and that wheat was only introduced in the Late Period. Presumably Nunn means 'spelt' when he says 'wheat'. Both emmer and spelt are what are called 'hulled wheat'[216]. The German term for hulled wheats in general is *Spelzen* or *Spelweizen*, and the confusion regarding spelt may have arisen from a misunderstanding of the German term.

Lefebvre believes that *mjmj* is the same as *bdt* (emmer wheat – *Triticum turgidum*) but that the word refers to the grains themselves rather than the plant (in Sauneron 1989:96). Faulkner (1986:104) tentatively refers to *mjmj* as 'seed-corn of emmer'. His dictionary entry is clearly obtained from Gardiner (1948:113) where '*mjmj* seed-corn of emmer(?)' is discussed.

Gardiner (1948:114) believes that it is important to take note of the ingredients which appear with *mjmj* in medical prescriptions as this gives a clue to its identity. He provides evidence of five prescriptions where *mjmj* or meal of *mjmj* (ground *mjmj*) appears with either meal of barley, meal of wheat, or both (Gardiner 1948:114). Gardiner (1948:114) suggests that *bdt* (emmer wheat) would be a good complement to barley and wheat, but that the word *bdt* never seems to appear with them. It would seem that Gardiner's (1948:114) reason for suggesting *mjmj* and *bdt* to be synonymous is based on *mjmj* being a common cereal crop and a plant bearing grains.

[216] The term 'hulled wheat' refers to species of wheat from which the hull must be removed (from the grains) after threshing.

If spelt was not grown in ancient Egypt, then Gardiner (1948:114) may be quite correct in suggesting that *mjmj* and *bdt* are synonymous.

7.2.83.6 Note 6

See 7.2.63.5 for the note on valerian (*šꜣšꜣ*) for Paragraph 59.

7.2.83.7 Note 7

Sauneron (1989:96) translates the word *jrtj* as *caroub* (carob). Indeed, this seems quite plausible for the following reason: the *Hearst Papyrus* and the *Ebers Papyrus* have parallel remedies. The ingredient called *jrtj* is used in Hearst 125 in an ointment; in Ebers 563 this ingredient is called *ḏꜣrt*, which we know to be carob pods (Von Deines & Grapow 1959:51). The word *jrtj* does appear to be synonymous with *ḏꜣrt*. It is suggested by Von Deines & Grapow (1959:51) that *jrtj* may be a form of *jꜣrrt* (grapes). However, this is unlikely because *jꜣrrt* are already mentioned as ingredients in this particular *Brooklyn Papyrus* recipe.

7.2.83.8 Note 8

See 7.2.28.1 for note on the watermelon (*bddw-kꜣ*) for Paragraph 46k.

7.2.83.9 Note 9

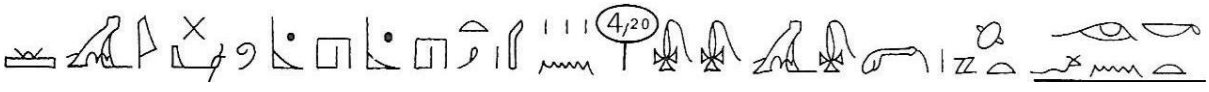
The phrase *sḏr n jꜣdt* is found in Faulkner (1986:259) with a meaning of 'expose all night to dew', and, likewise, in Von Deines & Grapow (1959:831) as *werde nachts dem Tau ausgesetzt*.

7.2.83.10 Note 10

Sauneron (1989:96) is quite correct in pointing out that apparently the scribe has omitted the word *swr* between *ʿtḥ* and *r hrw jfdw*. The remedy is intended to be drunk by the patient.

7.2.84 Paragraph 71b

Brooklyn Papyrus, page 4, lines 19 to 20



kt jr n.f: sjn ṯɜy, srf m srf n ḏbʿ. hbhb jm.

Another (remedy) which is prepared for him: male clay[1], heat to the warmth of a finger. (For) driving out the pain[2] with it.

7.2.84.1 Note 1

See 7.2.58.4 for the note on male clay (*sjn ṯɜy*) for Paragraph 55.

7.2.84.2 Note 2

The problem with the line *hbhb jm*, as Sauneron (1989:97) sees it, is that there is no object for the verb *hbhb*.

Sauneron (1989:97) gives a translation for *hbhb jm* of *enduis (-le) avec cela* (cover [it / him] with this). Sauneron directs the reader to Paragraph 74a where one finds *hbhb dmt jm*, which he translates as *enduire la plaie avec (cela)* (cover the wound with [this]). The problem with his analogy is that by using the masculine pronoun in his translation for Paragraph 71b, he is suggesting that it is the patient that is covered and not the wound *dmt* which is in the feminine gender.

However, the problem of the missing object for the verb *hbhb* is easily solvable. The *Brooklyn Papyrus* tends to use a different word than *hbhb* for 'cover / protect', as per the examples found in Paragraph 43c: *nḏ ḥʿ tw n wḫd dmt jm* (cover / protect the body of the one suffering the bite with it); and Paragraph 47g: *nḏ wḫd dmt jm ḥnʿ kɜp.f* (protect the one suffering the bite with it, by fumigating him). Sauneron tends to translate the word *nḏ* as *enduire* (to cover), whereas the current translation prefers to translate *nḏ* as 'cover / protect' because there is a magical component to the word *nḏ* that cannot be adequately expressed in one word (see 7.2.9.4, note 4).

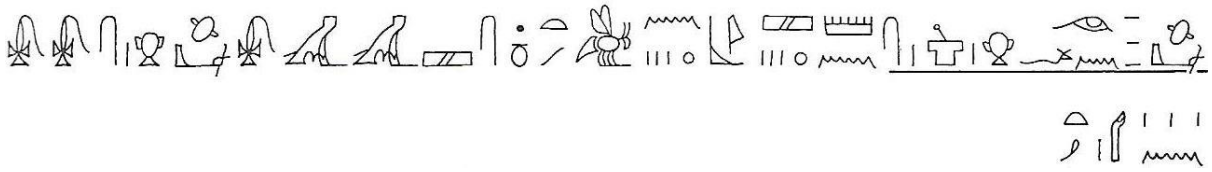
Sauneron (1989:97) refers one to Von Deines & Westendorf (1962:564) where the word *hbhb* is given a meaning of *durchziehen* (to draw through, to pass through). An example of its use is to be found in Ebers 856a: *ʿḥɜt-ʿ m mḏɜt nt hbhb wḫdw* … This is translated by Lalanne & Métra (2017:211) as *début du document écrit, du déplacement des* oukhedou (commencement of the document written to remove *wḫdw*). This example is where Faulkner (1986:158) gets

his meaning for *hbhb* as ‘to remove (pain)’. One must also consider the meaning of the medical sense of the word provided by Hannig (2006:523): *durchziehen (der schmerzsoffe den Körper* (the removal of that which causes pain from the body). This echoes the meanings found in Ebers 856a and Faulkner.

A separate word as the object of the verb is not necessarily required if one takes the verb *hbhb* to mean ‘to drive out pain’. The problem of Sauneron’s missing object is eliminated.

7.2.85 Paragraph 71c

Brooklyn Papyrus, page 4, line 20



wt jrt n.f ḥr sꜣ.s: mnšt, jbnw, bjt. sšmm. wt ḥr.s, srf n ḏbꜥ.

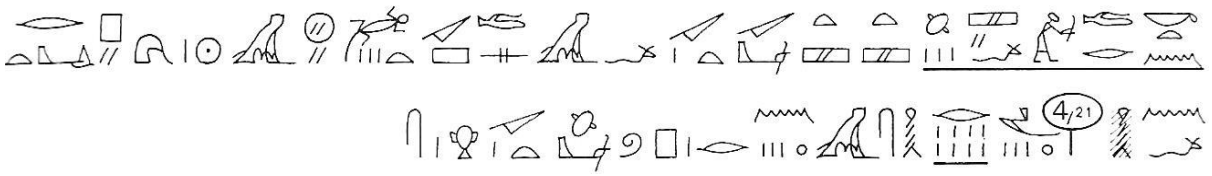
A dressing (lit. bandage) which is prepared for him after this: red ochre[1], alum, honey. Warm up (the mixture). Apply a dressing (lit. bandage) with this, (heated) to the warmth of a finger.

7.2.85.1 Note 1

Sauneron (1989:98) translates the word *mnšt* as *résine* (resin), instead of ‘red ochre’.

7.2.86 Paragraph 72a

Brooklyn Papyrus, page 4, lines 20 to 21



kt n dr šfwt: tštš dmt.f m ds ꜥšꜣ sp m hrw tpj. rdjt n.f: ḥmꜣ(t): $^{1}/_{8}$*, ḥsmn r pw. wt dmt ḥr.s.*

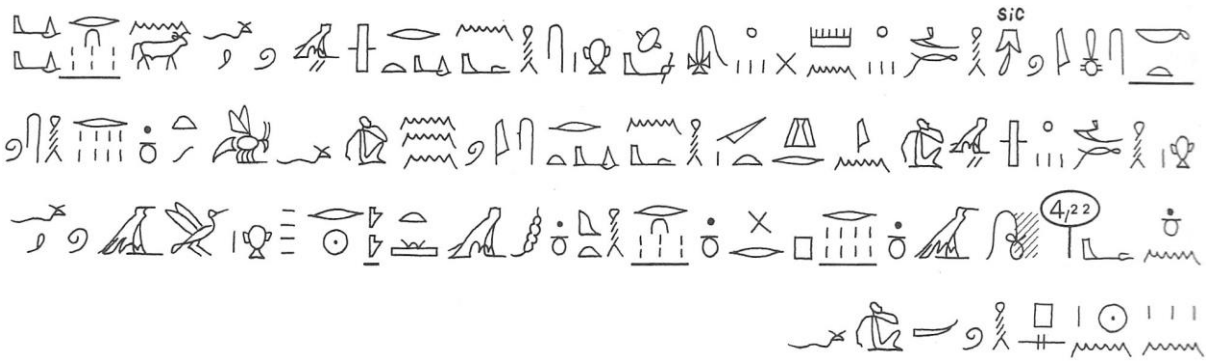
Another (remedy) for reducing (lit. for driving out) swelling: incise his bite wound with a knife numerous times on the first day. (For) applying on him: salt: $^{1}/_{8}$, or natron[1], whichever. (Make a) dressing (for) (lit. bandage) the wound with this.

7.2.86.1 Note 1

See 7.2.24.2 for the note on natron (*ḥsmn*) for Paragraph 46g.

7.2.87 Paragraph 72b

Brooklyn Papyrus, page 4, lines 21 to 22



kt: smj, ḥmɜ(t) mḥ(t), mnšt. srf, wt ḥr.s, ḥnᶜ rdjt jmj wfɜ n ḫmt: $^{1}/_{16}$, *dd*(*w*) *ḥr ḥmɜ*(*t*) *mḥ*(*t*). *jmj swr jn ḫr*(*j*) *dmt, ḥnᶜ rdjt swr.f: bjt:* $^{1}/_{8}$, *ḥsɜ n ᶜwɜyt:* $^{1}/_{8}$, *pɜ-wr:* $^{1}/_{16}$, *ḥ*(*n*)*qt nḏmt:* $^{1}/_{64}$ + $^{1}/_{64}$, *r hrw 4, ḥr pɜ wfɜ n hrw n psḥ.f.*

Another (remedy): curds, salt of the north[1], red ochre[2]. Heat, (and) apply a dressing (lit. bandage) with this, and give the inside of a cow's lung: $^{1}/_{16,}$ sprinkle (lit. apply) with salt of the north. To be taken by the one who has the bite wound, and seeing to it that he drinks[3]: honey: $^{1}/_{8}$, mucilage of fermentation[4]: $^{1}/_{8}$, vinegar[5]: $^{1}/_{16,}$ sweet beer[6]: $^{1}/_{64}$ + $^{1}/_{64,}$ for four days, with this lung on the day on which he was bitten (lit. of his bite).

7.2.87.1 Note 1

See 7.2.13.2 for the note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

7.2.87.2 Note 2

See 7.2.39.2 for the note on red ochre (*mnšt*) for Paragraph 49a.

7.2.87.3 Note 3

The text makes it very clear that it must be ensured that the bite victim drinks the mixture prescribed.

7.2.87.4 Note 4

See 7.2.41.1 for the note on mucilage of fermentation (*ḥsꜣ n ʿwꜣyt*) for Paragraph 50a.

7.2.87.5 Note 5

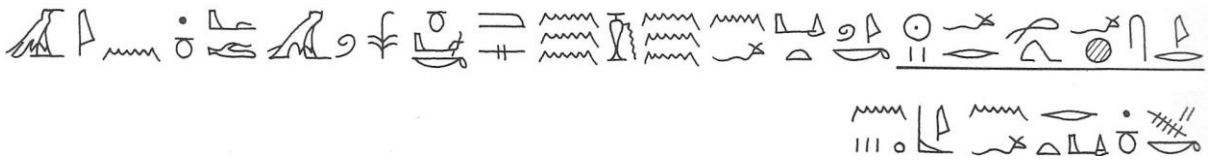
See 7.2.38.2 for the note on vinegar (*sꜣ-wr*) for Paragraph 48c.

7.2.87.6 Note 6

See 7.2.7.6 for the note on sweet beer (*ḥnqt nḏmt*) in Paragraph 43a.

7.2.88 Paragraph 72c

Brooklyn Papyrus, page 4, line 22



jr sfḫ.f r hrw snwj jw.k djt n.f mw qbw. gs.k sw m ʿd n jꜣt k(*ꜣ*)*, rdjt n.f jbnw.*

If he becomes less swollen (lit. ‘loosens’) after two days, you (are) to give him cool water. You smear him with the fat[1] of the back of a (bull?)[2], (while) giving him alum[3].

7.2.88.1 Note 1

See 7.2.33.1 for the note on fat (*ʿḏ*) for Paragraph 47e.

7.2.88.2 Note 2

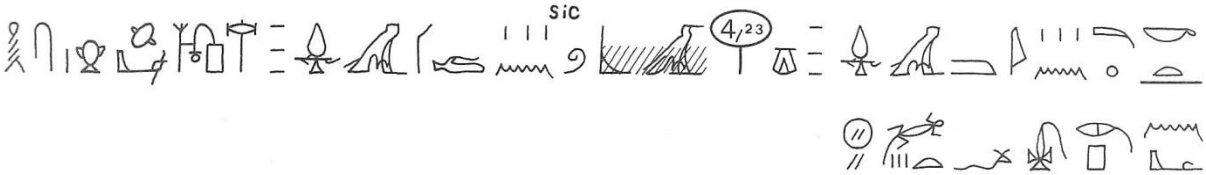
It is a probability that the signs spelling  *jꜣk* or *jꜣyk* are intended to be the words *jꜣt kꜣ* (the back of a bull), as Sauneron (1989:98) considers it to be.

7.2.88.3 Note 3

It is not specified how the alum is supposed to be used in this particular treatment, but one may presume that it is intended to be swallowed without vomiting. So far in the *Brooklyn Papyrus*, this ingredient has only been used for wound coverings with bandages. This ingredient appears several times in the *Brooklyn Papyrus* in comparison to its use in other medical papyri. It appears twice in the *Ebers Papyrus* (96, 422), once in the *Hearst Papyrus* (31) and twice in the *Berlin Medical Papyrus* (46, 52). None of these uses was intended for internal consumption. However, Pliny the Elder[217] mentions that the best kind of alum (alumen), which was found in Egypt, could be used in a liquid form mixed with honey for mouth ulcers, and swallowed in a pill form to deal with ailments of the spleen and for 'carrying off blood by the urine'. It seems, therefore, that this is an ingredient which can be used orally and this is possibly the case here in Paragraph 72c.

7.2.89 Paragraph 72d

Brooklyn Papyrus, page 4, lines 22 to 23



kt: dqw jmɜ, gɜbw(t) n dgm. nḏ snᶜᶜ. wt ḥr.s, ḥnᶜ kɜp.f ᶜšɜ sp.

Another (remedy):powder of meru tree[1],leaves of the castor oil plant[2]. Crush finely. Apply a dressing (lit. bandage) with this, and fumigate him numerous times.

7.2.89.1 Note 1

See 7.2.18.6 for the note on the meru tree (*jmɜ*) for Paragraph 46a.

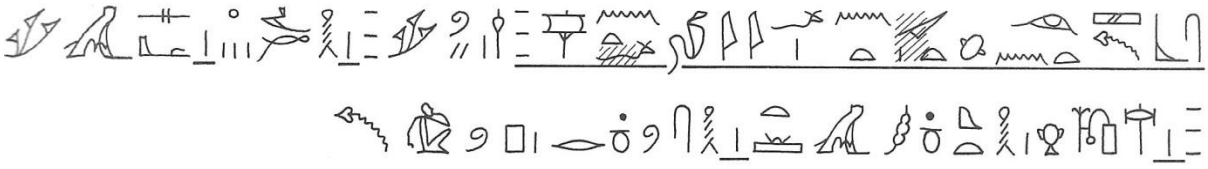
7.2.89.2 Note 2

See 7.2.11.3 for the note on the castor oil plant (*dgm*) for Paragraph 44b.

[217] 'Alumen, and the several varieties of it'. Pliny the Elder, *The Natural History*, book 35, chapter 52. Perseus Digital Library at Tufts University: www.perseus.tufts.edu (accessed online on 2nd March 2018).

7.2.90 Paragraph 73

Brooklyn Papyrus, page 4, line 23



sbš jrt wḫd dmt nt fy nft: ḥḏw: 1, *ḥmɜ(t) mḥ(t):* 1, *sʿm:* 1. *nḏ snʿʿ ḥr ḥ(n)qt nḏmt, ḥs(ɜ) r pw. swr qʿ.*

An emetic (lit. causing vomiting) prepared for the one suffering the bite of the blowing viper[1]: onion[2]: 1, salt of the north[3]: 1, white wormwood[4]: 1. Crush smoothly in sweet beer[5], or mucilage[6], whichever. (For) drinking (and) vomiting.

7.2.90.1 Note 1

See 5.2.14 (Paragraph 27) for the blowing viper (*fy nft*) and 6.3.8 for the probable identity of this snake as the puff adder (*Bitis arietans*).

7.2.90.2 Note 2

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.90.3 Note 3

See 7.2.13.2 for the note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

7.2.90.4 Note 4

See 7.2.38.4 for the note on the white wormwood plant (*sʿm*) for Paragraph 48c.

7.2.90.5 Note 5

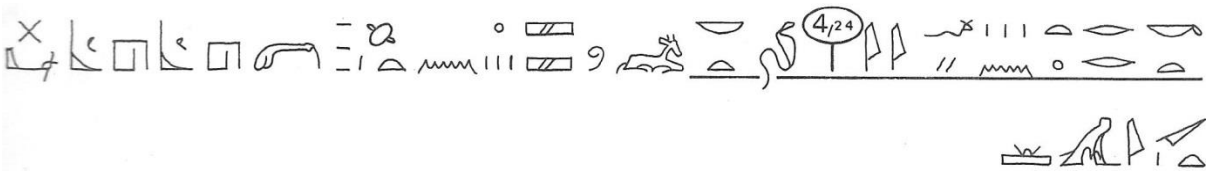
See 7.2.7.6 for the note on sweet beer (*ḥnqt nḏmt*) in Paragraph 43a.

7.2.90.6 Note 6

See 7.2.15.2 and 7.2.58.3 for the notes on mucilage for Paragraphs 45c and 55 respectively.

7.2.91 Paragraph 74a

Brooklyn Papyrus, page 4, lines 23 to 24



kt rrt n fy nbt: jwšš n sjn ṯ3y. hbhb dmt jm.

Another remedy[1] for (the bite of) any viper: a mixture like dough[2] of male clay[3]. (For) driving out the pain[4] of the bite wound with it.

7.2.91.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.91.2 Note 2

Sauneron (1989:99) uses the word *emplâitre* (plaster) for *jwšš*, and Von Deines & Westendorf (1961:34) translate it as *teig* (dough), while Hannig (2006:36) gives possible meanings of *haferschleim* (gruel), and *haferbrei* (porridge). What is being conveyed by the various possible meanings of the word *jwšš* is that a mixture like dough or porridge is made from the clay to use as a poultice on the bite wound.

7.2.91.3 Note 3

See 7.2.58.4 for the note on male clay (*sjn ṯ3y*) for Paragraph 55.

7.2.91.4 Note 4

See Paragraph 71b, 7.2.84.2 for the explanation of the meaning of *hbhb* (to drive out pain).

7.2.92 Paragraph 74b

Brooklyn Papyrus, page 4, line 24

kt: mnšt, bjt. wt ḥr st.

Another (remedy): red ochre[1], honey. Apply a dressing (lit. bandage) with it.

7.2.93.1 Note 1

See 7.2.39.2 for the note on red ochre (*mnšt*) for Paragraph 49a.

7.2.93 Paragraph 75a

Brooklyn Papyrus, page 4, lines 24 to 25

rrt n fy ḫr ⸢t⸣bwj: tpnn: $^{1}/_{64}$*, šɜšɜ:* $^{1}/_{16}$*, pr*(*t*) […]*:* $^{1}/_{32}$*, ḥḏw:* $^{1}/_{4}$*, ḥmɜ*(*t*) *mḥ*(*t*)*:* $^{1}/_{64}$*, bjt:* $^{1}/_{8}$*, ḥ*(*n*)*qt nḏmt:* $^{1}/_{16}$ + $^{1}/_{64}$*. nḏ snᶜᶜ. sḫkr m ḥbs. pgs r tɜ sp.*

A remedy[1] for (the bite of) the horned viper (lit. the viper which has horns)[2]: cumin[3]: $^{1}/_{64}$, valerian[4]: $^{1}/_{16}$, seeds of […][5]: $^{1}/_{32}$, onion[6]: $^{1}/_{4}$, salt of the north[7]: $^{1}/_{64}$, honey: $^{1}/_{8}$, sweet beer[8]: $^{1}/_{16}$ + $^{1}/_{64}$. Crush smoothly. (For) filtering[9] through cloths[10]. Vomit to the ground repeatedly[11].

7.2.93.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.93.2 Note 2

The spelling here of the word *dbwj* (two horns) is interesting. Compare with Paragraph 28 where the spelling of the word is *dbwj* rather than *tbwj* (see 5.2.15). See, also, 6.3.9 for the possible identity of this snake as *Cerastes cerastes* and *Cerastes gasperetti.*

7.2.93.3 Note 3

See 7.2.7.3 for the note on cumin (*tpnn*) for Paragraph 43a.

7.2.93.4 Note 4

See 7.2.63.5 for the note on valerian (*šɜšɜ*) for Paragraph 59.

7.2.93.5 Note 5

Because of the lacuna here, there is no indication of what type of fruit or seeds is meant.

7.2.93.6 Note 6

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.93.7 Note 7

See 7.2.13.2 for the note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

7.2.93.8 Note 8

See 7.2.7.6 for the note on sweet beer (*ḥnqt nḏmt*) in Paragraph 43a.

7.2.93.9 Note 9

The more usual spelling, which is used in Paragraph 84, is *sḥɜk*, given by Hannig (2006:821), where he also gives this late variant spelling. This word, *sḫkr* / *sḫɜk* has probably been used here instead of the more usual *ʿtḫ*, because the text clearly specifies that the mixture should be filtered through a cloth, whereas the verb *ʿtḫ*, which is the usual word for 'filter' used by this papyrus, seems to imply the use of the filtration pot (*rmnt*).

7.2.93.10 Note 10

The line underneath the sign 𓅱𓏏𓅱 of *ḥbsw* is superfluous, as indicated on by Sauneron (1989:100).

7.2.93.11 Note 11

It appears that a word, *swr*, has been omitted. The remedy must first be swallowed before it can be vomited.

7.2.94 Paragraph 75b

Brooklyn Papyrus, page 4, lines 25 to 26

kt: ṯɜtj: $^{1}/_{32}$, *sʿm wɜḏ:* $^{1}/_{16}$, *qbw n ḥsp*[*t*]*:* $^{1}/_{64} + {}^{1}/_{64}$, *ṯɜmṯɜm:* $^{1}/_{16}$, *ḥḏw:* $^{1}/_{16}$, *ḫṯn:* $^{1}/_{16}$, *ḥmɜ*(*t*) *mḥ*(*t*)*:* $^{1}/_{64}$, *ḥɜtj n trt:* $^{1}/_{16}$, *bjt:* $^{1}/_{4}$, *ḥsɜ n ʿwɜyt:* $^{1}/_{16} + {}^{1}/_{64}$. *swr jn wḫd dmt. pgɜs r hrw 4.*

Another (remedy): *tjati*[1] plant: $^{1}/_{32}$, fresh white wormwood[2]: $^{1}/_{16}$, *qebu* plant[3] of the garden: $^{1}/_{64} + {}^{1}/_{64}$, *tjam-tjam*[4] (plant): $^{1}/_{16}$, onion[5]: $^{1}/_{16}$, garlic[6]: $^{1}/_{16}$, salt of the north[7]: $^{1}/_{64}$, heart[8] (core) of the willow: $^{1}/_{16}$, honey: $^{1}/_{4}$, mucilage of fermentation[9]: $^{1}/_{16} + {}^{1}/_{64}$. (For) drinking by the one suffering the bite. To be vomited for four days.

7.2.94.1 Note 1

The identity of the *ṯɜtj* plant is unknown.

7.2.94.2 Note 2

See 7.2.38.4 for the note on the white wormwood plant (*sʿm*) for Paragraph 48c.

7.2.94.3 Note 3

See 7.2.18.9 for the note on the *qebu* plant (*qbw*) in Paragraph 46a.

7.2.94.4 Note 4

The *ṯɜmṯɜm* is an unidentified plant. With regard to its possible identity, Sauneron (1989:101) says that one is tempted to think of the Semitic name *simsim* which refers to the seeds of *Sesamum orientalis* and its varieties. However, the objection to this identification is found as follows: in New Kingdom transcriptions the Semitic letter ש was rendered as *š* in Egyptian, while ט was usually expressed as *ṯ* (Sauneron 1989:101). Sauneron does hint at a possible

identification for *ṯɜmṯɜm* by noting that Ibn el-Beithar (§ 1476) knew of a plant called طمطم (Tam-Tam) which is apparently sumac. Unfortunately, as there is no further evidence, this plant must remain unidentified for now.

7.2.94.5 Note 5

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.94.6 Note 6

The use of *ḫṯn* (garlic), as a medicinal ingredient here in the *Brooklyn Papyrus* is unusual. *Allium sativum* (garlic) (Hannig 2006:677) does not appear to have been used medicinally. There is no mention of it in Von Deines & Grapow (1959), and therefore it presumably does not appear in any of the major known medical papyri as a medicinal ingredient.Manniche (1989:71) also comments that the word *ḫtn* does not seem to appear in a medicinal context. She suggests that one may need to be looking for a different word such as *tɜ n ḥḏw*, Referring to a 'white onion'. The name *tɜ n ḥḏw* literally means 'this of white'. Manniche (1989:71) says that the word *ḫtn* is a suggested meaning for 'garlic' and that it is close to the Babylonian word for garlic, namely *ha-za-nu.*

The pharmacological actions of garlic are listed by Nunn (2002:216) as 'antibacterial, expectorant, hypotensive, antimicrobial, anti-inflammatory, anthelminthic' and it 'reduces blood lipids'. Pliny said that the smell of garlic repelled snakes and scorpions (Darby *et al* 1977:657), and Manniche (1989:71) cites Pliny who says that an ointment of honey and garlic was used to treat snakebites. Despite this, and garlic's frequent medicinal use in today's world, in the *Brooklyn Papyrus* it only appears once – in an emetic preparation.

7.2.94.7 Note 7

See 7.2.13.2 for the note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

7.2.94.8 Note 8

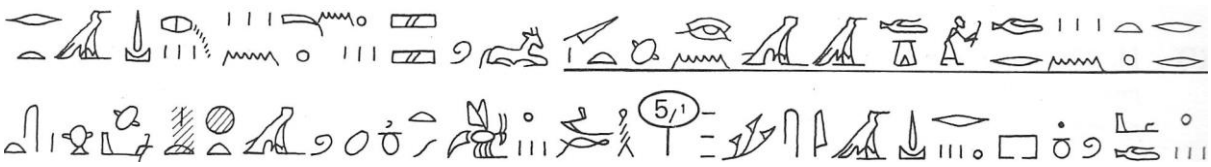
It is probable that the word 'heart' refers to the inner core of the willow.

7.2.94.9 Note 9

See 7.2.41.1 for the note on mucilage of fermentation (*ḥsɜ n ʿwɜyt*) for Paragraph 50a.

7.2.95 Paragraph 76

Brooklyn Papyrus, page 4, line 26 to page 5, line 1



rrt n dr dgm(*t*) *n wḫd dmt: jwšš n dqw n jt, ḏ3rt, ʿd, pr*(*t*) *ḏ3js, ḥmz*(*t*) *mḥ*(*t*), *jr m ḫt wʿt. bjt. wt ḥr st*.

A remedy[1] to drive out unconsciousness[2] in (lit. of) the one suffering the bite: gruel of barley flour[3], carob pod[4], fat[5], seeds of wild rue[6], salt of the north[7], honey. (All this) is mixed (lit. made)[8] into a homogenous mixture. Apply a dressing (lit. bandage) with it.

7.2.95.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.95.2 Note 2

According to Sauneron (1989:102), the word *dgmt* is interpreted as ‘aphasia’ by Breasted (1930:296), ‘aphasia’ being the inability to speak or understand speech due to brain damage. As Sauneron (1989:102) points out, a wider interpretation of the word *dgmt* is needed for it is not just speech that can be incapacitated, but also control of the facial muscles and movement and the use of his tongue and eyes. A bite which contains neurotoxin in the venom is likely to cause such symptoms (see 4.2.3.1 for the discussion on the sysmptoms associated with snakebite contining neurotoxic venom). It is best probably to follow Hannig (2006:1062) with a translation of the word *dgmt* in a broad context with a word such as *bewusstlosigkeit* (unconsciousness).

7.2.95.3 Note 3

As Sauneron (1989:102) points out, this line is almost identical to the first line in Paragraph 94 where the words *nḏ n jt* (flour of barley) replaces *dqw jt* (powder / flour of barley). This helps to confirm the meaning of the signs  as *dqw* (powder / flour) rather than *dgm* (pulp). See also 7.2.62.5.

7.2.95.4 Note 4

See 7.2.62.6 for the note on carob pods (*ḏɜrt*) for Paragraph 58.

7.2.95.5 Note 5

The recipe does not specify which animal the fat must be obtained from. As the treatment in this paragraph is almost identical to the one in Paragraph 94, with the exception of its method of use, one can compare the two recipes. In Paragraph 94 it is *ꜥḏ ḫmt* (fat of a cow), or *ꜥḏ kɜ* (fat of a bull), as Sauneron prefers, that is used. See 7.2.33.1 for the note on (*ꜥḏ*) for Paragraph 47e.

7.2.95.6 Note 6

See 7.2.2.4 for the note on wild rue (*ḏɜjs*) for Paragraph 40.

7.2.95.7 Note 7

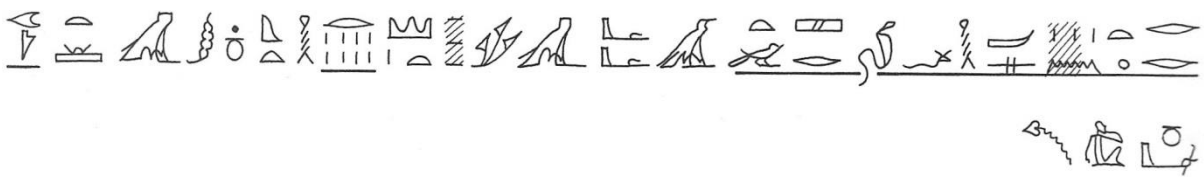
See 7.2.13.2 for the note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

7.2.95.8 Note 8

Here there is an unusual spelling involving the sign 𓎛. By analogy with the phrase *nḏ snꜥꜥ m ḫt wꜥt* (crush smoothly into a homogenous mixture) in Paragraphs 59, 62c and 66b, one may assume that the signs 𓎛𓋴 stand in the place of *nḏ snꜥꜥ*. However, if one goes back to Paragraph 51b one finds 𓎛 with a phonetic value of *jr* (see 7.2.44.2, note 2). In Von Deines & Westendorf (1961:82) one finds an example from the *Hearst Papyrus* (171) of *jrj.w* [*sic*] *n-f ḏw-ꜥ ḥr jns.t-f.* In this line the verb *jrj* is used in the passive form. It is unusual to find the line *jrj m ḫt wꜥt* (form into a homogenous mixture) in the passive in the Brooklyn Papyrus, as most examples of this involve the active form of the verb (see Von Deines & Westendorf 1961:86). .

7.2.96 Paragraph 77a

Brooklyn Papyrus, page 5, line 1



rrt n ps(ḥ) ḫf(ɜw) šr: ɜᶜm dšrt: $^{1}/_{8}$, *ḥ(n)qt nḏmt:* $^{1}/_{16}$ + $^{1}/_{64}$. *ᶜtḫ. swr qᶜ.*

A remedy[1] for the bite of a small snake: aaam[2] (plant) of the desert: $^{1}/_{8}$, sweet beer[3]: $^{1}/_{16}$ + $^{1}/_{64}$. Filter. (For) drinking (and) vomiting.

7.2.96.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.96.2 Note 2

The identity of the *ɜᶜm* plant is unknown. It is not listed in Von Deines & Grapow (1959) and therefore it most likely does not appear in any of the known major medical papyri.

7.2.96.3 Note 3

See 7.2.7.6 for the note on sweet beer (*ḥnqt nḏmt*) in Paragraph 43a.

7.2.97 Paragraph 77b

Brooklyn Papyrus, page 5, line 1

kt: ḥḏw: $^{1}/_{8}$, *mw:* $^{1}/_{16}$ + $^{1}/_{64}$. *swr qᶜ.*

Another (remedy): onion[1]: $^{1}/_{8}$, water: $^{1}/_{16}$ + $^{1}/_{64}$. (For) drinking (and) vomiting.

7.2.97.1 Note 1

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.98 Paragraph 77c

Brooklyn Papyrus, page 5, line 1

kt: bdd(*w-kɜ*)*, ḥḏw, bjt. gs jm.*

Another (remedy): watermelon[1], onion[2], honey. Smear (the patient) with this[3].

7.2.98.1 Note 1

See 7.2.28.1 for note on the watermelon (*bddw-kɜ*) for Paragraph 46k.

7.2.98.2 Note 2

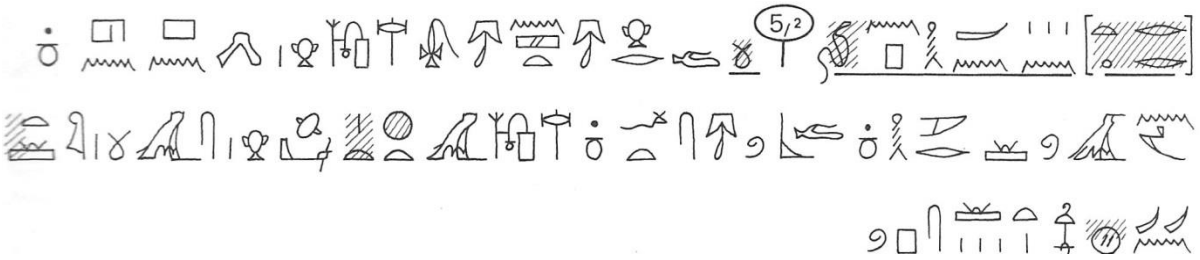
See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.98.3 Note 3

It is not clear what word was in the lacuna. However, Sauneron (1989:103) restores it with *jm* after comparing it with Paragraph 50b. It must be noted that Sauneron translates *gs jm* in two different ways. His translation of *gs jm* in Paragraph 50b reads *faire une onction avec cela* (perform an unction with this). His translation of *gs jm* in Paragraph 77c reads as *enduire (le blesse) [avec (cela)]* – cover (the patient) [with (this)].

7.2.99 Paragraph 78a

Brooklyn Papyrus, page 5, lines 1 to 2



rrt n psḥ n ḥnp: šs dḥr n št(*yw*)*. srf. nḏ snᶜᶜ ḥr pɜqyt n hnw n mɜw. mrḥ*(*t*) *dbw, sft. nḏ snᶜᶜ m ḫt wᶜt. wt ḥr.s. m šs mɜᶜt ḥḥ sp. ḥmwt.s pw.*

A remedy[1] for the bite of the henep[2]: a strip[3] of dried (lit. warmed) tortoise hide[4]. Crush finely with a fragment[5] of a new jar. Oil (grease) of hippopotami, Cilician fir oil[6]. Grind smoothly into a homogenous mixture. Apply a dressing (lit. bandage) with it. It is truly excellent, a million times. It is the treatment for it (lit. 'it is its treatment)[7].

7.2.99.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.99.2 Note 2

See 5.2.10 for the description of the henep snake (Paragraph 23), and 6.3.5 for the possible identity of the henep snake as *Echis coloratus* (painted saw-scaled viper, painted carpet viper).

7.2.99.3 Note 3

The sign  strangely seems to be ignored by Sauneron. It does not form part of the words on either side of it. The sign  appears in Faulkner (1986:270) as an abbreviated form of the word *šs*, meaning 'rope'. It forms part of a genitive construction with the word *dḥr* (hide) which follows it to produce *šs dḥr* (a strip / rope of hide). One could consider that the 'rope' or 'thong' would be a strip of dried tortoise hide. The hide has been dried out by heating it to form a leathery strip or left out in the sun to dry.

7.2.99.4 Note 4

That fact that the remedy calls for *dḥr* (hide, leather), rather than *pꜣqyt* (shell) of tortoise, is in itself very unusual, as Sauneron (1989:103, note 2) remarks. Examples of medicinal use of tortoise shell are found in the *Ebers Papyrus* treatments (124, 452, 476, 539, 734, 766d). However, no examples of medicinal use of tortoise hide are found in Von Deines & Grapow (1959:508), and, therefore, one would presume, are not to be found in the major known medical papyri.

7.2.99.5 Note 5

Once again, the *Brooklyn Papyrus* uses an abbreviated form of a word not found in the dictionaries. The determinative  and the sign  alone are used for the word *pꜣqyt* (a fragment).

7.2.99.6 Note 6

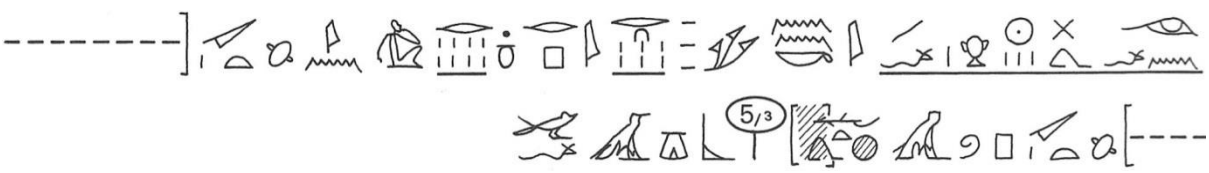
See 7.2.69.3 for note on Cilician fir oil (*sft*) for Chapter 62c.

7.2.99.7 Note 7

Sauneron (1989:103) translates the line *ḥmwt.s pw* eloquently as *c'est ainsi qu'il faut la traiter* (it is in this manner that one treats it).

7.2.100 Paragraph 78b

Brooklyn Papyrus, page 5, lines 2 to 3



jr n.f sš hrw 3 ḥr.f: jnnk: $^{1}/_{16}$*, jrp:* $^{1}/_{8}$*. swr jn wḫd dmt.* [*... ... ...*]*dmt pw m ḫt bgꜣ.f.*

Prepare (a remedy) for him (once) three days have passed by: conyza / thyme?[1]: $^{1}/_{16}$, wine: $^{1}/_{8}$. (For) drinking by the one suffering the bite. It is [a remedy] for the one who has been bitten, after he loses his strength[2].

7.2.100.1 Note 1

Some debate exists around the identity of the *jnnk* plant, which Sauneron (1989:104) translates as aquatic mint (*Mentha aquatica*), a meaning also proposed by Dawson (Von Deines & Grapow 1959:40). On the other hand, Lelanne & Métra (2017:231) are confident in their translation of *jnnk* as conyza (*Erigeron* sp.), also known as fleabane, horseweed or butterweed.

The dictionaries give various possible meanings for the translation of *jnnk*: Faulkner (1986:23) tentatively offers water mint (*Mentha aquatica*) and thyme (*Thymus vulgaris*), while Hannig (2006:88), equally tentatively, has the conyza species and *Thymus vulgaris*.

According to Loret (1892:67), the plant described by the Greeks under the name of χόνυζα has been unanimously identified by botanists as being from the genus *Erigeron.* The Egyptian conyza (*Erigeron aegypticus*) is the only *Erigeron* of this extensive plant family that grows abundantly in Egypt. Conyza is sometimes called by the Coptic word *Koniza*, and sometimes *Nounkie*, *Eng*, or *Enouk* (Loret 1892:68). Another Egyptian plant frequently mentioned in the

medical papyri has the name of *Ank* or *Annouk.* Loret (1892:68) believes that these names could correspond with the Coptic *Eng* and *Enouk* and, as a result, could equate with *Erigeron aegypticus*, the Egyptian conyza, the leaves of which were used on those suffering from the effects of snakebite and on wounds and swellings (Osbaldeston & Wood 2000:519).

However, the second possibility for *jnnk* proposed by Loret was 'thyme' (Von Deines & Grapow 1959:40) by the way of another Coptic word, *Nounk* (Loret 1892:68). Loret (1892:68) believes that the name *Nounk* could be derived from *Ank* or *Annouk*. However, Manniche (1989:150), however, says that the name for thyme has not yet been proved and that the word *ṯꜣjtj* is a possibility. Thyme, according to Dioscorides, was applied to snakebites and also taken as a drink by the victim (Osbaldeston & Wood 2000:418).

Considering the above information, it may be possible to eliminate aquatic mint from the list of possibilities. The proposals given by Loret, based on the Coptic words, seem fairly sound. It may well be that, if *Nounk* is derived from *Ank* or *Annouk*, the plant called *Nounk* refers to thyme; and *Eng* or *Enouk* refers to conyza. If this is the case, then *Ank* and *Annouk* are not synonymous with *Eng* and *Enouk*. The question then still remains: which plant represents *jnnk* – conyza (see Figure 88 below) or thyme (see Figure 89 below)?

Figure 88: Egyptian conyza (*Erigeron aegypticus*)[218]

Figure 89: Thyme (*Thymus vulgaris*)[219]

[218] Photograph of Egyptian conyza (*Erigeron aegypticus*) by Bart Wursten (2019) is used under Creative Commons license CC BY-NC 3.0.
[219] Photograph of thyme (*Thymus vulgaris*) by Wendy Golding (2018).

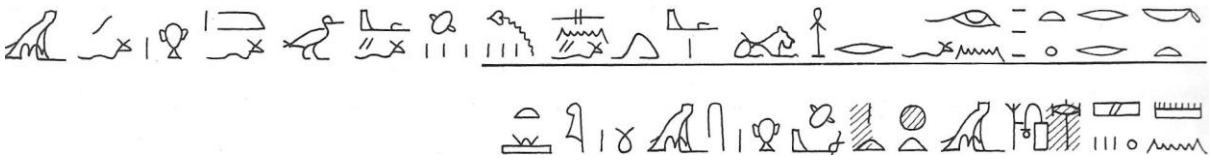
The plant *jnnk* was used to relive abdominal conditions, expel worms and treat the *wḫdw* (wekhedu)[220] and ꜥ3ꜥ (aaa) disease[221] conditions (Darby *et al* 1977:806).

7.2.100.2 Note 2

The treatment in this paragraph is intended to restore strength to the bite victim. Sauneron (1989:104) translates […] *dmt pw m ḫt bg3.f* as *c'est un [rémede qu'il redonne des forces] à l'homme qui a été mordu, apres qu'il a perdu ses forces* (it is a [treatment to restore the strength] to the man who has been bitten, after he has lost his strength). In the lacuna, therefore, Sauneron feels that the meaning conveyed by the missing words would be something like: *qui redonne ses forces* (which restores the strength). He believes that the missing words most likely express the action of the remedy, and he bases this on analogy with Paragraph 43c where the action of the remedy is described as one that fortifies the heart and restores breathing.

7.2.101 Paragraph 79a

Brooklyn Papyrus, page 5, line 3



kt rrt jr n.f r šnꜥ snf: ḥs ꜥf(f). gs.f ḥr.f m mnšt. nḏ snꜥꜥ m ḫt wꜥt. wt ḥr.s. m šs mꜣꜥt.

Another remedy[1] prepared for him to halt[2] bleeding: fly excrement. 2 parts of fly excrement to 1 part of red ochre (lit. its half (quantity) in it of red ochre)[3]. Crush smoothly into a homogenous mixture. Apply a dressing (lit. bandage) with it. It is truly excellent.

7.2.101.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

[220] According to Nunn (2002:60), the word *wḫd* (wekhedu) is tricky to find a definite meaning for and may have a number of meanings. Possibly the best interpretation is that of Ghalioughui (1987), which puts *wḫd* down to a 'morbid principle' due its links with infection (Nunn 2002:62).

[221] There is no conclusion as to the exact identity of the *aaa* disease despite numerous references to it in the medical papyri. Opinions range from blood in the urine, possibly caused by bilharzia or schistosomiasis, evil spirits impregnating victims with poisonous semen, to roundworm. For a good overview, see Nunn (2002:63).

7.2.101.2 Note 2

The word *šnᶜ* has an unusual initial hieroglyph  , which does not appear in Gardiner's sign list. Hannig (2006:895) gives three variant spellings of the word *šnᶜ*: the first with initial (V7 in Gardiner 1957:522), the other two with initial (N37 in Gardiner 1957:491), and all three followed by (N35 in Gardiner 1957:490). He adds fours signs that can be used as a determinative, but none of these signs resembles the initial sign in this text.

All three variants have  (D36 in Gardiner 1957:454) as in this text, followed in one by  (D54 in Gardiner 1957:457), which the above spelling has as a determinative, in the second by that of  (U13 in Gardiner 1957:517) and in the third by  (E23 in Gardiner 1957:460).

Owing to the similarity of the two signs in hieratic, the sign  can be used instead of  in words which read *snᶜ* (Gardiner 1957:460). This unknown sign  would therefore appear to have the phonetic value of either *š* or *šn*, but this same hieroglyph appears again in Paragraph 79b in the word *šnj* and since there is no following *n* sign, one must conclude that the value is *šn*.

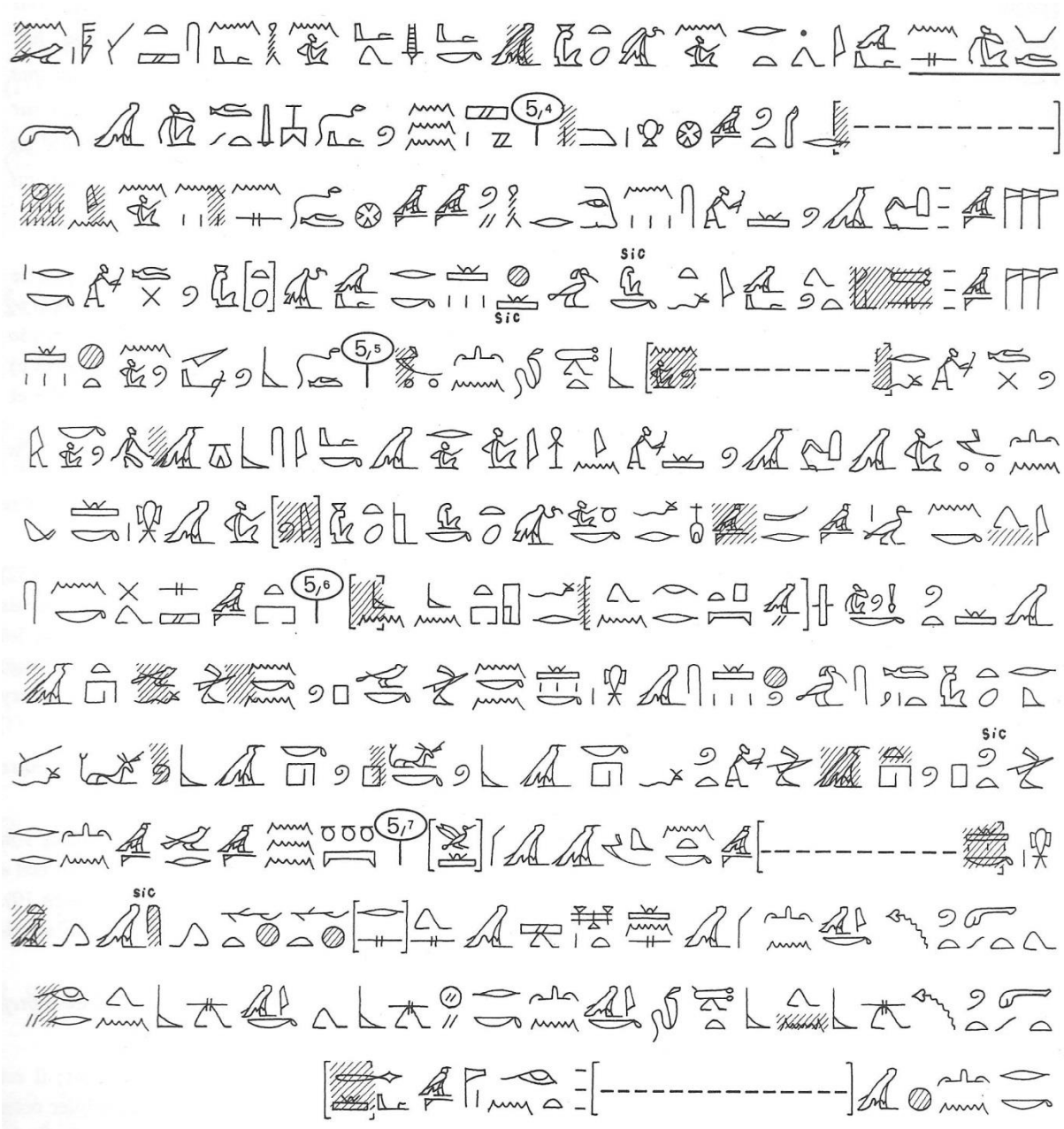
7.2.101.3 Note 3

Sauneron (1989:104) finds ambiguity in the line *gs.f ḥr.f* where  could be indicative of the verb 'to anoint' on the one hand. On the other hand, the sign may represent the quantity of fly specks to red ochre, the fly specks being two parts, and the red ochre being one part. Although one would be hard-pressed to imagine collecting large quantities of fly specks, this is the likely interpretation.

Sauneron prefers this translation relating to quantity rather than a method of use, and he translates it as *y ajouter la moité (de cette quantité) sous forme d'ocre rouge* (add half [of this quantity] in the form of red ochre). A factor in favour of the interpretation of *gs* as 'half' rather than 'annoint' is that the instruction *nḏ snᶜᶜ* or *nḏ snᶜᶜ m ḫt wᶜt* always precedes the method of use in this Papyrus. Therefore the word *gs* should be associated with quantity rather than method of use.

7.2.102 Paragraph 79b

Brooklyn Papyrus, page 5, lines 3 to 7



šd n.s. mj (j)r.t n.j, mwt! *m.k ꜥḥꜥ.n.j ḥnꜥ stš*! *qsn* [...] *r ḏbꜥwt ḥr gs š, wḏꜥ mdt m-bɜḥ nṯrw. ꜥḥɜ.sn ḫnt rḫwj njwt ḏd.n.sn n.j: jn psḏt (w)ṯs tw m ꜥ jt.k. ɜḫw r.k m ꜥ mwt. wd r.k wd r.f*! [*psḥ.n wj*] *bṯt nn mɜɜ.(j). ḏdb.n wj ḫt nn mꜥꜥ.j m ꜥḥɜw jn šnj r.j. m.k, js bɜg.kw*!

jj.(j) n.k, sɜ, ḥr nfr! *jnk mwt.k, jst*! *jw jnk m sɜ.k. sḏm.tw ḫrw.k jmj pt. spr.n.f r ḥwt bnbn. šš n.k srqt dt.s. ɜḫw.s m sɜ.k. nkn.k pw nkn.f. th.tw.(k) pw th.tw.f. khb.k pw khb.f. sɜ.k*

[*pw sꜣ nṯr X*]. *ntk, qmꜣ nnw wr*! *nn rr mtwt jm.k*! *nn qmꜣ n.s wꜣt šm.s r.s. ḫtḫt.s* (*ḥ*)*m*(*.s*) *tꜣ mtwt sb.n bṯt jm.k nn r.k sp. sb jm.k sb.n jr r.k. nn ḫm* […] *jrt n nṯr ꜥꜣ.*

Recite the (following) magic spell over the remedy (lit. 'it'). Do come to me, Mother! Look, I arose with Seth! (It was) difficult[1] […] against *Djebaout*[2] on the side of the lake, when the matter was judged in the presence of the gods[3]. They fought within the town[4] of the Two Contestants[5]. They told me: The Ennead raised you by the intervention (lit. 'hand') of your Father[6]. Magical spells (come) to you by the intervention (lit. the hand) of your Mother. Send out your voice (and) deflect (lit. harm / injure) his voice[7]! The *betjet*[8] (snake) [has bitten me][9] (but) I did not see it. Something has pricked me (which) I did not see[10]. This is an attack (lit. constituting) by making a curse against me[11]. Look. I am weak!

(I) come to you, (my) Son, beautiful Horus! I am your mother, Isis[12]! I am your protection. Your cry was heard in the heavens (lit. sky). It has reached the *benben*[13] temple. Serqet extends her hand to you. Her power of magic is your protection. An injury made to you is an injury made to it[14]. When you are injured (lit. maimed),[15] it is indeed injured. Harm done to you is harm done to it. Your protection [is the protection of the deity X][16] You, who the Great Nun (lit. 'primal waters') gave the potential of life (lit. created)! The venom does not circulate[17] in you! It could not make a path for itself to move forward. It turns back (and) retreats[18, 19]. This venom which the betjet has placed in you, does not remain in you. (That which) was placed within you has returned to the one who acted against you. There is no person […][20] to do for the great god.

7.2.102.1 Note 1

As there are apparently no traces left of the writing, Sauneron offers no suggestion as to what the missing words might have been in this fairly long lacuna.

7.2.102.2 Note 2

Djebaout was an ancient urban area of the Delta which had a heron as its deity. Later it was incorporated into, or replaced by, Pé (Buto), and Horus apparently replaced the heron (Sauneron 1989:106). The reference to Djebaout on the side of a lake may well be a reference to an event in the later myth called *Contendings of Horus and Seth*. The re-enactment of the battle between the two gods took place 'on temple lakes' according to Pinch (2002:83), who

explains that sacred lakes were important because re-enactments of certain myths (such as the emerging of the creator deity from the primal waters) took place on their shores (Pinch 2002:21).

7.2.102.3 Note 3

The reference to the judging of the matter in the presence of the gods inevitably calls to mind the myth of the *Contendings of Horus and Seth*. The version of the myth in the *Chester Beatty Papyrus I* tells of how the matter of which one of them was to have the throne of Egypt was to be judged by the Ennead or Tribunal of Gods (Oden 1979:354; Watterson 1999:86). References to the myth in this incantation are quite relevant because, as Van Dijk (2006:1704) says, the semen of Seth is perceived as being as similar to snake or scorpion venom. Indeed, the words for 'semen' and 'poison' are quite similar, according to Pinch (2006:82).

7.2.102.4 Note 4

According to Sauneron (1989:106), the town that is referred to is Hermopolis of the Delta (Tell Baqlia).

7.2.102.5 Note 5

The 'Two Contestants' must be Horus and Seth, also called the 'Two Fighters' in Pinch (2002:83). Depending on the context, the word *rḥwj* can be translated as 'the Two Combatants', if Horus and Seth are concerned, or more positively 'the Two Companions', if the two concerned are Ra and Thoth (Faulkner 1986:151).

7.2.102.6 Note 6

Sauneron (1989:105) indicates that there is an error in the text by writing 'sic' above the determintive of *jt.f* where  (B1 in Gardiner 1957:448) is used instead of  (A1 in Gardiner 1957:442).

7.2.102.7 Note 7

The translation given by Sauneron for *wd r.k wd r.f* is *attaquer ta parole, c'est (donc) attaquer sa parole* (to attack your words, is [therefore] to attack his words. The word *wd* has possible meanings in Faulkner (1986:72) of 'to throw' and 'to commit', while *wd r* has a

meaning of ‘to send forth the voice’, hence the current translation: Send out your voice (and) deflect (lit. harm / injure) his voice.

7.2.102.8 Note 8

Betjet, according to Sauneron (1989:106, note 3) is the popular name for the henep snake.

7.2.102.9 Note 9

The proposed restoration given for the missing text in the lacuna by Sauneron (1989:106) is *psḥ.n wj – m’a mordu* – ([it] has bitten me). The line which follows *psḥ.n wj*, namely *ḏdb.n wj ḫt nn mɜɜ.j* (something has pricked me which I did not see) supports this proposed restoration.

7.2.102.10 Note 10

The line *ḏdb.n wj ḫt nn mɜɜ.j* is probably a reference to the myth of Isis and Ra. Isis wishes to know the true name of Ra, which he will not give to her. She makes a snake which she lays on the path where Ra walks. He treads on it as he does not see it and is bitten (Pinch 2002:69–70) (see 8.4.2.2).

7.2.102.11 Note 11

According to Pinch (2002:81), it was a standard practice to curse one’s enemy by wishing a dangerous creature upon him / her.

7.2.102.12 Note 12

The reference to Isis incorporates yet another myth into the spell being pronounced over the treatment. This time it is the legend of Isis and Horus the Child. Horus has been bitten by a snake or stung by a scorpion. Isis appeals to the other deities to help her to heal him. In one version of the story it is Geb (controller of the earth snakes) and Nut that are appealed to. In another version it is the sun god that she calls upon. He sends Thoth or one of his manifestations to remove the venom (Pinch 2002:80–81) (see 5.2.10.7 and 5.2.13.4).

7.2.102.13 Note 13

The cry of Horus for his mother, Isis, reaches the temple of the *benben.* Sauneron (1989:106) says that, according to the *Metternich Stele*, Isis was in or near Heliopolis at the time when

Horus was bitten or stung. The reference to the temple of the *benben* confirms this because the *benben* is a sacred stone in the very important cult temple of Ra at Heliopolis (Pinch 2002:227).

7.2.102.14 Note 14

A change in gender can be noted with the suffix pronoun in the line *nkn.k pw nkn.f* where one would expect to find *nkn.s* instead of *nkn.f*. This same pattern in a change of gender is seen in the two lines which follow, namely, *th.tw.*(*k*) *pw th.tw.f* and *khb.k pw khb.f*. One would presume that the suffix pronoun should refer to Serqet and therefore be in the feminine gender. However, Sauneron (1989:106) feels that the change in gender indicates that it is now a god and not a goddess that is involved, and that it is probably Ptah[222]. His reason for this is that the instruction in Paragraph 79c is for the spell to be said over an image of Ptah. However, it is possible that the suffix pronoun *.f* refers to the word *ꜣḫw* (power of magic) and not an unnamed male god.

7.2.102.15 Note 15

Sauneron (1989:105) notes that there is a spelling error in the text in the line *th.tw pw th. tw.f*. Although he does not say what is it, it is likely, on comparison with the line immediately before and immediately after it, that the suffix pronoun *k* has been omitted and the line should read *th.tw.*(*k*) *pw th.tw.f*.

7.2.102.16 Note 16

It is possible that the missing words in the lacuna were *pw sꜣ nṯr X*, based on Sauneron's proposal of [*c'est la protection du dieu…*] ([it is the protection of the god …]) for the lacuna. The hieroglyph immediately after the lacuna is  (G7 in Gardiner 1957:468), indicating that the word preceding it is likely to be the name of a god.

7.2.102.17 Note 17

The word *rr* in the hieroglyphic text is puzzling at first. However, it is reminiscent of the unusual spelling that the *Brooklyn Papyrus* uses for the word meaning 'remedy', namely,

[222] Although Ptah was chiefly associated with Memphis, he was encountered throughout Egypt and Nubia (Hart 2005:129). His role as a god of craftsmen may well have contributed to his creator-god status (Shaw & Nicolson 2005:230) as Ptah was believed to have formed creation through his heart and tongue [intellect and word] respectively (Hart 2005:129).

pḫrt. The hieroglyphic spelling of the word uses  instead of  . The same convention of spelling applies here. The word *rr* is a variant spelling of *pḫr,* a word which one can then make sense of. This unusual spelling of *pḫr* does not appear in Faulkner (1986) or Hannig (2006). However, it does appear in Erman & Grapow (vol. 2, 1928:438) where they refer one from  (*rr*) to *pḫr.* The word *pḫr* is given a variety of possible meanings in Erman & Grapow (vol. 1) including *umwenden, umdrehen* (to turn around) (Erman & Grapow, vol. 1, 1926:544) and *durchziehen* (to pass through) (Erman & Grapow, vol. 1, 1926:547). This unusual spelling of *rr* is not commented on by Sauneron so he may have been familiar with it. This word appears again in Paragraph 99c.

7.2.102.18 Note 18

The signs  should perhaps be  – *ḥm* (to retreat). Sauneron (1989:107) comments on this and cites the example in *Bremner Rhind Papyrus* (30[1]) on which this suggestion is based.

7.2.102.19 Note 19

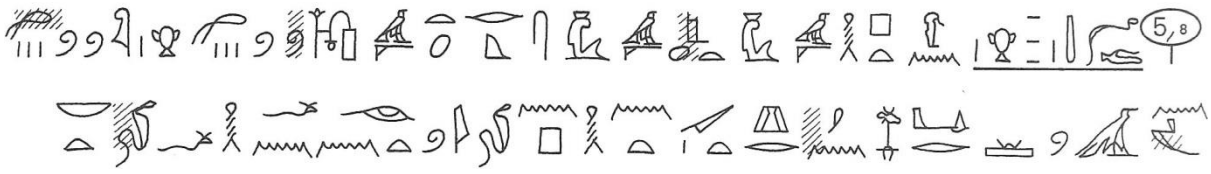
In the line *ḫtḫt.s* (*ḥ*)*m*(*.s*) is a reference to the myth of Isis and Horus in which Horus is bitten by a snake (or stung by a scorpion) in the reed marshes (see 7.2.102.12 and 8.4.2.2). Thoth comes to cure him and he says ‘Back, O Poison! You are exorcised by the spell of Ra himself’ (Rundle Clark 1959:192). In one of the *Pyramid Texts* one reads ‘may that which comes out of your mouth be turned back against yourself (O Snake!) (Rundle Clark 1959:242). These lines are very similar to what one finds in this paragraph of the *Brooklyn Papyrus*.

7.2.102.20 Note 20

The line *nn ḫt* […] *jrt n nṯr ꜥ₃* is translated by Sauneron (1989:106) as *Il n’y a personne qui puisse ignorer [l’ordre que] donne le dieu grand!* (nobody is able to ignore [the order that] the great god gives). Unfortunately, it is impossible to know what words were contained in the lacuna.

7.2.103 Paragraph 79c

Brooklyn Papyrus, page 5, line 8



ḏd-mdw ḥr twt ptḥ, jst, srqt, sšw ḥr šw n mɜw. ḏjt r ḥtyt n ẖr(j) dmt nt ḥnp. jw jrt n.f n ḥf(ɜw) nbt.

Spell to be recited (lit. words to be spoken) over an image of Ptah, (and) of Isis, (and) of Serqet, drawn on a new, blank papyrus roll. Place on the throat[1] of the one who has the bite wound of the henep (snake)[2]. It is done for (the bite of) any kind of snake.

7.2.103.1 Note 1

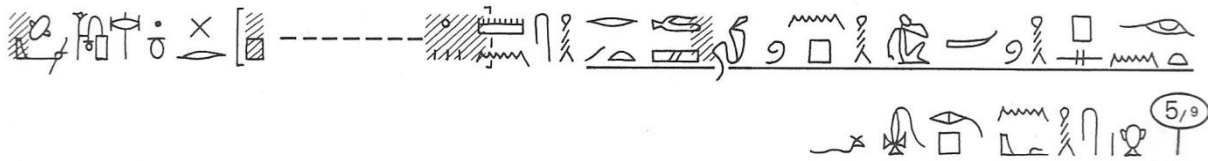
According to Pinch (2002:95), the myth of *Ra's True Name* could be recited over images of deities that were drawn directly onto the patient's skin or on to a piece of linen placed on the patient's throat. This was usually done in conjunction with the provision of a healing drink for the patient, and it was intended to be an antidote to poison. This is exactly what is prescribed in the text above, but without any medication.

7.2.103.2 Note 2

See 5.2.10 for the description of the henep snake (Paragraph 23), and 6.3.5 for the possible identity of the henep snake as *Echis coloratus* (painted saw-scaled viper, painted carpet viper).

7.2.104 Paragraph 80a

Brooklyn Papyrus, page 5, lines 8 to 9



jrt n psḥ ḥnpw dšrt: ḥsmn, [...]*, pɜ-wr. nḏ snʿʿ. wt. ḥr.s ḥnʿ kɜp.f.*

A preparation (lit. preparing) against the bite of the red henep[1]: natron[2], […][3], vinegar[4]. Grind smoothly. Apply a dressing (lit. bandage) with it and fumigate the patient (lit. him).

7.2.104.1 Note 1

See 5.2.11 for a description of the red henep snake in Paragraph 24, and 6.3.6 for the possible identity of this snake as the *Macrovipera lebitina* (Levantine viper).

7.2.104.2 Note 2

See 7.2.24.2 for the note on natron (*ḥsmn*) for Paragraph 46g.

7.2.104.3 Note 3

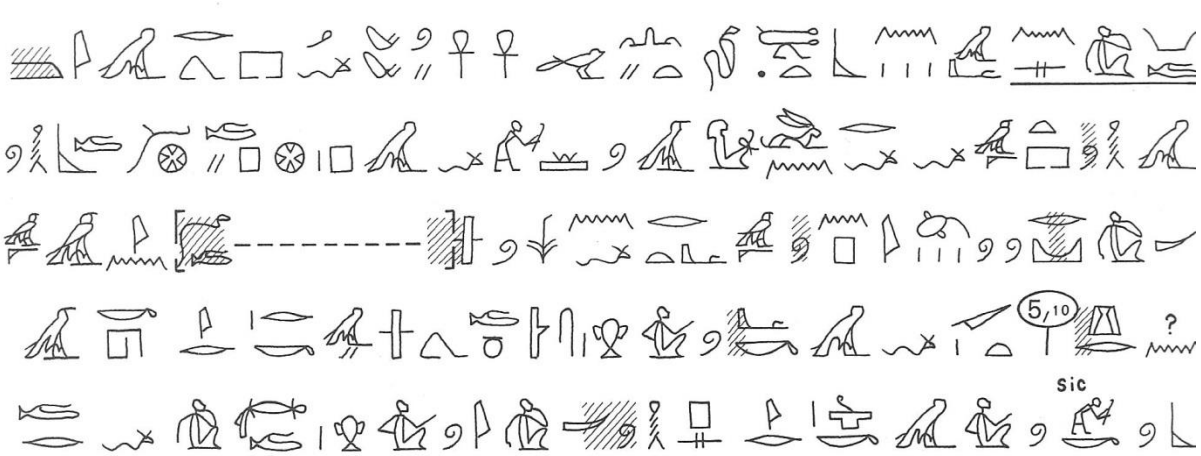
The second ingredient of this recipe is unknown owing to the missing text in the lacuna.

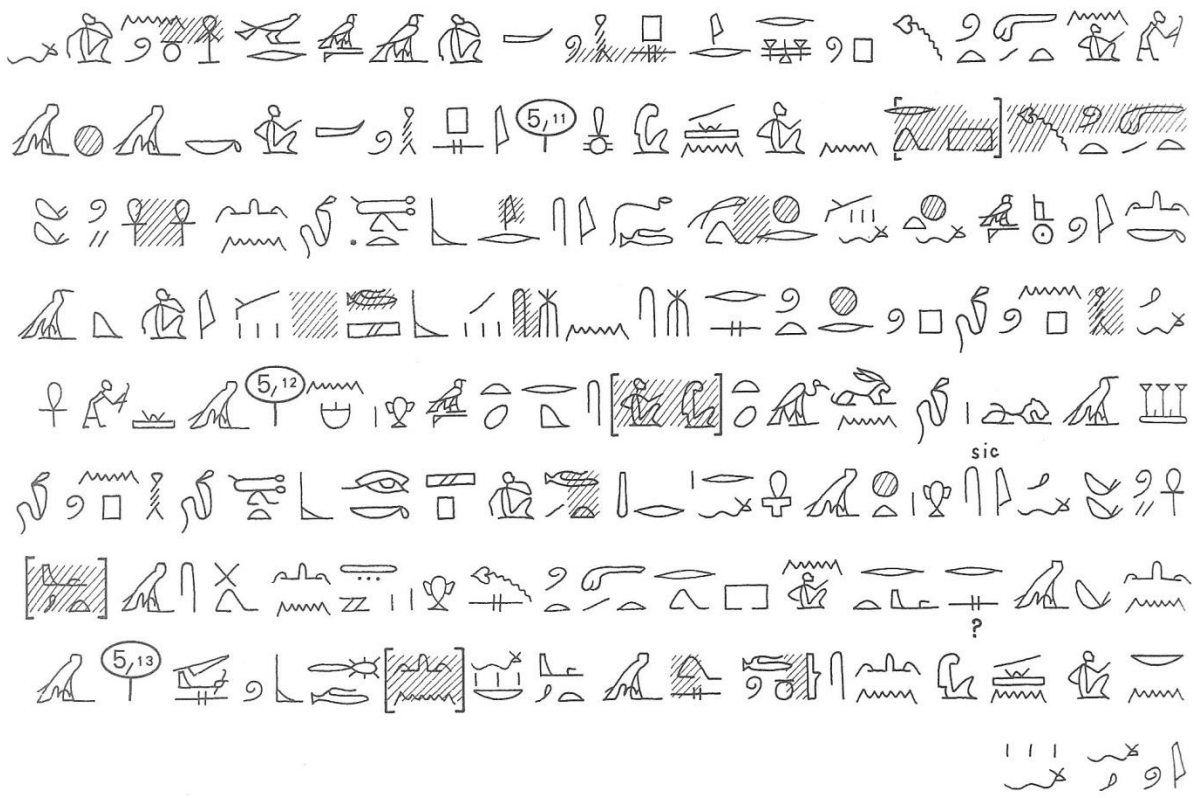
7.2.104.4 Note 4

The third ingredient must be *pз-wr* (vinegar) as indicated by the signs  and a trace of the sign □ before it in the lacuna. Sauneron (1989:107) has '*liquide-paour*' in his translation. See 7.2.38.2 for the note on vinegar (*sз-wr*) for Paragraph 48c.

7.2.105 Paragraph 80b

Brooklyn Papyrus, page 5, lines 9 to 13





šd n.s: m.tn bṯt jwtj ꜥnḫwj.f, pr m jm ḥwt-nṯr.f, r.f wn sɜw.f m p dp, dbḥw rḏw jnpw, r djt n.f sw jm [*...ḏd*] *jn ḥr n ḫr*(*j*) *dmt.f: m.k*! *wj ḥr sqd jmj r.k*! *jr khb.k wj,* (*jw.j*) *m sɜ.k*! *jr psḏ, jw.j ḥr šd.f. dr.n.j mtwt pw r wɜt. jr psḏ ḥr, wr šnw.f. mtwt*! [*pr*] *n sj n st, mj psḏ.k m ḫm.k. jw wsjr, ḫftjwb.f ḫr*! *ḏd js jr bṯt nn ꜥnḫwj.f, ḥnpw pw. ḫr tw r.s ms n msw-bdš, jqɜšɜrw. wn mwt.*[*j*] *srḳt ḥr nḥm ꜥnḫwj.f. j*(*w*)*s ḥr ḫtm r.f r mdt. šp.k bṯt, ḥnp*! *nn sdm r.s, r djt n.j pr mtwt.s hr tɜ. nn sš.s m ꜥt nb n sj n st. nn sqd.s. m ꜥt.f nb. nn ḫdb.s m jwf.f.*

Pronounce over this remedy (lit. ‘it’): See the betjet which does not have ears[1], coming out of his temple / tomb[2] where he stays, in order for him to act as guardian in Pe and Dep, which is necessary for the bodily excretions (lit. fluids) of Anubis[3], in order to place him in / on him in […]. Horus [saying] to the one who has the bite wound: Look! I am making which is in your mouth turn around[5]! If you harm me, (I will)[6] be following you! As for the bite, I chase it away. I have driven the venom out of your body (lit.‘to the path’). As for the bite of Horus, great is his magician. Venom! [Come out][7] of X, son of Y (lit. ‘a man of a woman’), as you bite without being known[8] (lit. ‘in ignorance of you’). Osiris, his enemies fail. Say of the betjet without ears, ‘It is a henep’. One calls it the child (young) of the mesou-bedesh, Iqasharu[9]. It is [my] mother Serqet who removed its ears. She[10] seals its mouth to prevent

speech (lit. ‘against speech’). Be blind[11], Betjet, Henep! Its voice is not heard, in order to make its venom fall out upon the ground. It does not spread in any limb of X, son of Y. It will not circulate in any of his limbs. It will not cause death to his body (lit. ‘kill in his flesh’).

7.2.105.1 Note 1

Snakes do not have external ears or a tympanum. They detect sound as a vibration which is sensed via certain bones of the lower jaw (Alexander & Marais 2007:33). References to adders which are deaf or cannot be charmed are found in Psalms 58:5 and Jeremiah 8:17.

7.2.105.2 Note 2

The translation given by Sauneron (1989:108) is *qui est sorti de son trou* (who has come out of his hole). However, it is easy to miss the significance of the sign  (G7 in Gardiner 1957:468) following the word  (*ḥwt*) in the line: *pr m jm ḥwt-nṯr.f*. The words *ḥwt-ntr* represent a ‘place of worship’ or a ‘temple’ (Hannig 2006:551), but the inclusion of Anubis in this paragraph brings to mind the link between Anubis and funerary cults, and hence the possibility of *ḥwt-nṯr* being a tomb rather than a temple. The spelling of the word *ḥwt* in this paragraph with the sign  does not appear in the dictionaries.

7.2.105.3 Note 3

The line *r.f wn sɜw.f m p dp, dbḥ rḏw jnpw* needs a little consideration in order to understand firstly, the role played by the betjet snake, and secondly, the meaning of the ‘*rḏw* of Anubis’.

Pe and Dep, named Buto by the Greeks, represent the cult area of the snake goddess, Wadjet (Pinch 2002:211). According to Sauneron (1989:109), the protection of the *rḏw* of the gods was entrusted to a certain number of lesser supernatural spirits and serpent deities, or just serpents. The betjet snake, in this paragraph of the Brooklyn Papyrus, has the role of guarding the ‘*rḏw* of Anubis’ in Pe and Dep.

Anubis himself was a guardian. Firstly, as a god of embalming, he was guardian of cemetaries where bodies were prone to being dug up by jackals and wild dogs (Pinch (20026:39). Secondly, he was a guardian of ‘magical secrets’ according to Pinch (2006:39). By the first millennium BCE, Anubis had a reputation of commanding a band of

‘messengers’ who inflicted death and suffering on a victim. Another of Anubis’s less pleasant roles was to enforce curses or to punish anyone who offended the gods or violated tombs (Pinch 2002:104,105; Pinch 2006:39). It is clear from these examples that Anubis could act for humankind, or against it, like all more important deities.

Hannig (2006:516) gives the following meanings for the word *rḏw*: *Ausfluss* (a discharge), *(Leichen) secret* (bodily secretion), and *Flüssigkeit (aus Körper, aus Gott, besonders aus Leiche des Osiris)* (liquid [from the body, from a deity, particularly from the body of Osiris]). The word *rḏw* therefore appears to have a general meaning of a ‘bodily fluid’. Any fluid from the body of a deity must be highly important, as is suggested by the fact that the *rḏw* of Anubis must be guarded. Just as Anubis may act for or against humankind, so perhaps his bodily fluids might be able to be used in a positive manner, or even a harmful manner in the wrong hands, hence the need for a guardian.

7.2.105.4 Note 4

A trace of  allows Sauneron to restore this word as *ḏd*.

7.2.105.5 Note 5

It must be noted that this particular incantation of the *Brooklyn Papyrus* makes use of *ḥr* + infinitive in three places. In this line it is *ḥr sqd*. Further down one finds *ḥr šd* and *ḥr ḫtm*. This is not used in any of the other incantations in this Papyrus.

7.2.105.6 Note 6

Sauneron (1989:109) suggests a case of haplography, and that *jw.j* should be inserted to make sense of this line: *jr khb.k wj,* (*jw.j*) *m sꜣ.k*. It appears that the repeated letters were inadvertently omitted.

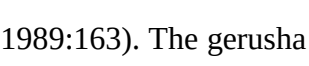
7.2.105.7 Note 7

Sauneron restores ‘*pr*’ in the lacuna.

7.2.105.8 Note 8

This is a reference to the myth of Isis and Ra in which Ra is bitten by a snake which he did not see (see 8.4.2.2).

7.2.105.9 Note 9

The name ‘henep’ was known in the New Kingdom times and often used in Ptolemaic texts. It is a betjet without ears, and also named ‘young of the mesou-bedesh’, and iqachar (Sauneron 1989:163). The gerusha () of Paragraph 49a, and the iqasharu () of Paragraph 80b are believed to be one and the same by Sauneron (1989:162) with an additional variant spelling of  (*jqšɜr*) occurring in the *Brooklyn Papyrus* (47.218.138), 12[6].

This name ‘iqasharu’ appears to be Semitic. In Arabic one finds the word قشر (qashar), meaning ‘scale’. In Ugaritic it is *ʿqšr*, the original of which resembles the Akkadian *kurṣimtu, kurṣindu* or *kurṣittu.* One can conclude from this that the snake has the type of scales which attract attention and also, owing to the origins of its name, is also found to the east of Egypt. It must live in Egypt and Palestine and the Semitic name was adopted by the Egyptians (Sauneron 1989:162). Therefore, says Sauneron (1989:163), *ìqšɜru* is the Semitic nickname of the henep (see 5.2.10) or betjet (see 5.2.20.7).

7.2.105.10 Note 10

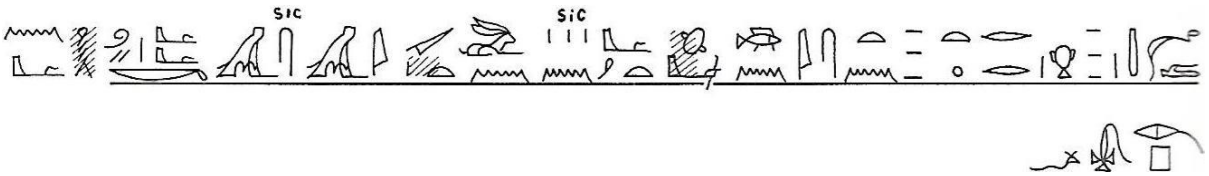
There is a spelling error, also noted by Sauneron. The text should read *jw.s* and not *js*.

7.2.105.11 Note 11

Sauneron (1989:109) translates *šp.k* as *disparais* (disappear) instead of ‘be blind’. This is not an unlikely interpretation of *šp.k* as the line which follows refers to not hearing the voice of the snake.

7.2.106 Paragraph 80c

Brooklyn Papyrus, page 5, line 13



ḏd ḥr pḫrt tn. sjn ʿwt n wn dmt jm.s m ʿwj.k, ḥnʿ kɜp.f.

Spell to be recited over this remedy. Rub the limbs of the one who has been bitten[1] with the remedy (lit. 'it') with both your hands, and fumigate him.

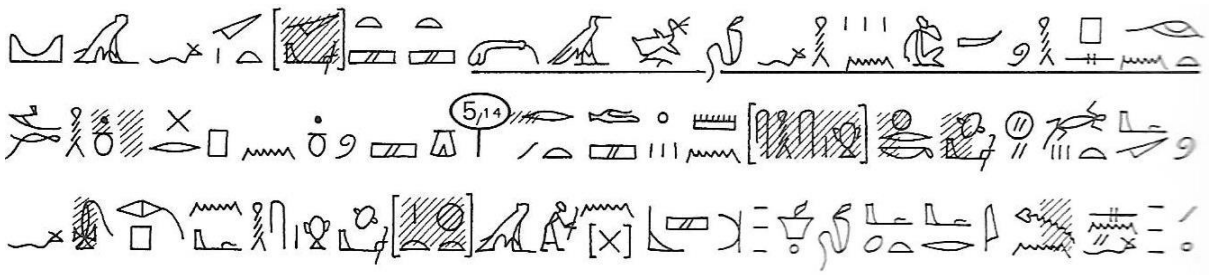
7.2.106.1 Note 1

The usual way of referring to the bite victim in this Papyrus is *ḫr(j) dmt* or *wḏ dmt*, and not *wn dmt*. This may be a textual error. Sauneron (1989:110) says that there are two possible ways of reading this line, and that either way the text is faulty and in need of correction. The first interpretation is *sjn ꜥwt n* [*ḫr*] *dmt jm.s* (massage [rub] the limbs of the patient with the remedy).

One presumes that the remedy refers to the preparation in Paragraph 80a, where it is also used on the bite wound under a bandage. Sauneron (1989:110) finds the second interpretation more probable: *sjn ꜥwt n* (negation) *wn dmt jm.s*[*n*] *m ꜥwj.k* (massage the limbs which are not injured with two hands). He believes this is more likely as the remedy is already being used on the bite wound.

7.2.107 Paragraph 81

Brooklyn Papyrus, page 5, lines 13 to 14



jrt n psḥ n ḫf(ɜw) ṯɜy: tštš dmt.f m ḏwꜥ ꜥšɜ spw. wt.ḫr.k ḥr.s: ḥsmn dšrt, g(ɜ)š n pɜ-wr, ḥmɜt mḥt, snf n jꜥrꜥt, snṯr pḫɜ. šbn m ḫt wꜥt. wt ḥr.s, ḥnꜥ kɜp.f.

A preparation (lit. that which is prepared) against the bite of a male snake: Cut the bite wound many times with a knife. You must dress (lit. bandage) it (with): red natron[1], lees of vinegar[2], salt of the north[3], blood of the cobra[4], ground terebinth[5] resin. Mix into a homogenous mixture[6]. Apply a dressing (lit. bandage) with it, and fumigate him.

7.2.107.1 Note 1

Red natron was a less pure form of natron with a red colour due to impurities such as iron compounds. It was found in the lake areas to the north-west of Cairo (Harris 1961:195).

7.2.107.2 Note 2

See 7.2.38.2 for the note on vinegar (*sꜣ-wr*) for Paragraph 48c.

7.2.107.3 Note 3

See 7.2.13.2 for the note on salt of the north (*ḥmꜣt mḥt*) for Paragraph 45a.

7.2.107.4 Note 4

Sauneron (1989:111) provides an interesting note on this ingredient 'cobra blood', saying this is not an ingredient that has appeared in the medical papyri before. Cobra blood is toxic and produces the same symptoms as the venom. However, it also contains antitoxins and antivenemous substances. Sauneron (1989:111) cites experiments done by Calmette in which guinea pigs and rabbits were repeatedly injected with diluted cobra blood. These animals became desensitised to the effects of the venom and were eventually able to receive large doses, with no apparent ill effect (Sauneron 1989:111).

The use of cobra blood in this treatment may well be a case of treating like with like, in which the 'doctrine of similar' (Petrie 1972:3) is employed. The ancient Egyptians, as Brier (2001:63) explains, had a strong belief in treating ailments based on the principle of the 'magic of similars'. According to this principle, treating the snakebite victim with cobra blood which is believed to contain venom is perfectly logical.

7.2.107.5 Note 5

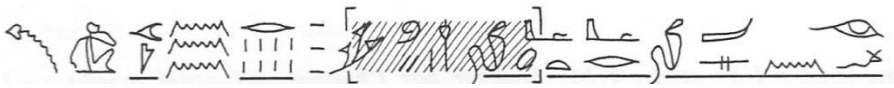
Refer to Paragraph 51b, note 7.2.44.3 regarding the identification of *snṯr pḫꜣ* as ground (or refined) terebinth. See 7.2.35.3 for the note on terebinth (*snṯr*) for Paragraph 47g.

7.2.107.6 Note 6

Following the example in Ebers 113 of *šbn m ḫt wʿt*, Sauneron (1989:111) restores the text in the lacuna with '*ḫt wʿt*'.

7.2.108 Paragraph 82a

Brooklyn Papyrus, page 5, line 14



jr.f n ps(ḥ) ḥfꜣw (j)ʿrʿt: [*ḥḏw*]*:* $^{1}/_{8}$*, mw:* $^{1}/_{16}$ + $^{1}/_{64}$*. swr qʿ.*

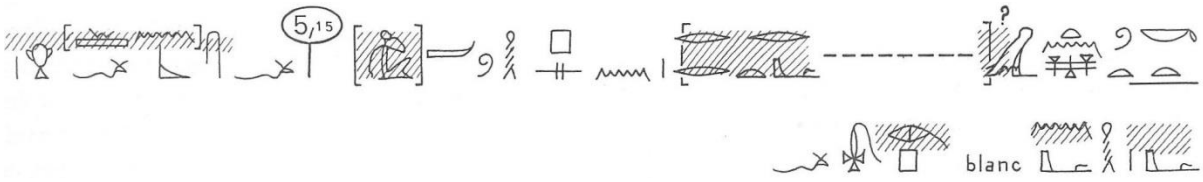
Prepare this (lit. it) for the bite of the cobra: [onion][1]: $^{1}/_{8}$, water: $^{1}/_{16}$ + $^{1}/_{64.}$ (For) drinking (and) vomiting.

7.2.108.1 Note 1

The hypothetical restoration of the missing text from this lacuna with the word *ḥḏw* by Sauneron is completely plausible. The onion is a frequently used ingredient and thus far in the Brooklyn Papyrus is mentioned first in the ingredient lists in 15 out of 25 remedies containing onion thus far in the *Brooklyn Papyrus*. See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.109 Paragraph 82b

Brooklyn Papyrus, page 5, lines 14 to 15



kt: wt-tn-wꜣt m[*… ?rdjt r r*] *n psḥ.f snb.f ḥr ʿ, ḥnʿ kꜣp.f.*

Another (remedy): *wet-ten-wat*?[1] […? (For) placing against the opening][2] of his bite wound. He recovers his health immediately (lit. on the hand), and fumigate him.

7.2.109.1 Note 1

This part of the line does not make sense, partly because this is an unusual opening, in the sense that it is different from the standard introductions and there is some text missing. The

word *wt* could just as easily be *tw* as the scribe of this Papyrus has a consistent habit of transposing the letters of this pronoun. Sauneron (1989:112) is also puzzled by these words and leaves his translation as *wt* […]. Whatever the words may mean, they describe a product that is placed on the bite wound. The only word beginning with *wt* that could be an ingredient is *wtyt* () – a part of the colocynth plant and the sycamore (Von Deines & Grapouw 1959:144; Sauneron 1989:112), but this word and its variant spellings do not match the signs here.

7.2.109.2 Note 2

On analogy of Paragraph 85b, Sauneron can restore the words *rdjt r r*.

7.2.110 Paragraph 82c

Brooklyn Papyrus, page 5, line 15

kt: twn: $^{1}/_{8}$, *bjt:* $^{1}/_{16}$, *wnm jn wḫd dmt*.

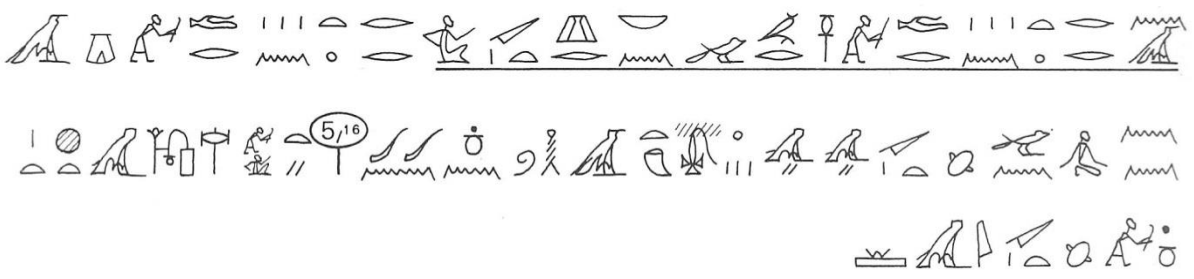
Another (remedy): *toun* plant[1]: $^{1}/_{8}$, honey: $^{1}/_{16}$. To be eaten by the one suffering the bite.

7.2.110.1 Note 1

See 7.2.52.1 for the note on the *toun* plant (*twn* / *ṯwn*) for Paragraph 54c.

7.2.111 Paragraph 83

Brooklyn Papyrus, page 5, lines 15 to 16



nꜣ rrwt n dr mr nb n ḫr(j) dmt. rrt n dr gnn n wḫd dmt: mjmj, tꜣw, ꜣḥw n rḫtj. nḏ snᶜᶜ m ḫt wᶜt. nḏ wḫd dmt jm.

These (are) remedies[1] (for) driving out all pain from the one suffering the bite[2]. A remedy (for) driving out weakness[3] in the one suffering the bite: emmer wheat[4], heated, lees of fuller's earth[5] (lit. dregs/lees of the washerman). Grind smoothly into a homogenous mixture. Cover and protect (lit. cover)[6] the sufferer of the bite wound with it.

7.2.111.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.111.2 Note 2

The first line, namely *nꜣ rrt n dr mr nb n ḫr(j) dmt* (these (are) remedies (for) driving out all pain from the one suffering the bite) is a general heading indicating the start of a specific treatment section. This is followed by the line which prescribes the treatment for this specific paragraph, namely a 'remedy (for) driving out weakness in the one suffering the bite'.

7.2.111.3 Note 3

Sauneron (1989:113) refers to *gnn* as 'asthenia', which is a general weakness and tiredness, usually due to an underlying medical condition. According to Sauneron (1989:113), this word *gnn* can be compared to *bꜣgj* (to be weary) (Faulkner 1986:79) and to *bdš* (to become faint, weak or exhausted) (Faulkner 1986:86).

7.2.111.4 Note 4

See 7.2.83.5 for the note on emmer wheat (*mjmj*) for Paragraph 71a.

7.2.111.5 Note 5

The reading of the word *rḫtj* is somewhat confusing at first because the usual spelling is  rather than  , as here. Regarding the use of the sign  instead of  , Sauneron (1963:XXXI) says that in hieratic writing, the sign of the two birds could become distorted and sometimes be given as  instead.[223]

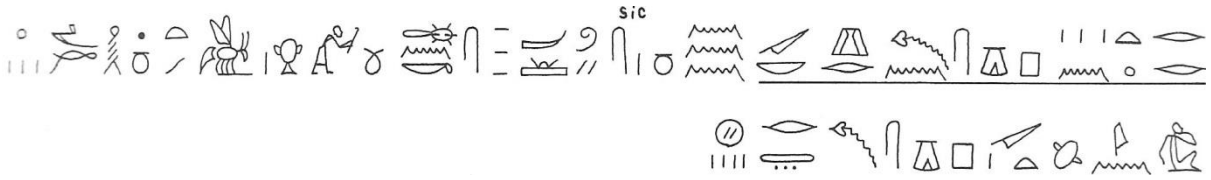
[223] These signs appeared in texts at the temple of Esna, written as  . In a discussion on the spelling of an epithet for Isis and Nepthys (the Two Female Companions), known from the *Pyramid Texts*, Fairman

7.2.111.6 Note 6

See 7.2.9.4 for the note on the word *nḏ* (cover / protect) for Paragraph 43c.

7.2.112 Paragraph 84

Brooklyn Papyrus, page 5, line 16



rrt n ⸢pgs⸣ (psg) n ḫr(j) dm(t) nb: mw (n) (ḥ)⸢s⸣wj. sḫɜk ḥr bjt ḥmɜ(t) mḥ(t). sbt jn wḥd dmt, psg r t ɜsp jfdw.

A remedy[1] to cause spitting[2] in the one suffering any[3] bite wound: rain[4] water[5]. Filter[6] with honey (and) salt of the north[7]. (For) taking (in the mouth) by the one suffering the bite, (and) spat out upon the ground four times.

7.2.112.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.112.2 Note 2

The hieroglyphs of the word *psg* have been transposed in the text, giving an incorrect reading of *pgs* instead (See Hannig 2006:313). The word *psg* means to 'spit on or at', rather than 'to vomit'. Altough this Papyrus tends to use the verb *qʿ* for the word 'vomit', Sauneron (1989:113) has translated the word *psg* as *vomir* (to vomit).

7.2.112.3 Note 3

Although Sauneron (1989:113) has translated the line *rrt n psg n ḫr(j) dmt nb* as *remède pour faire vomir l'homme qui a été mordu par quelque serpent que ce soit* (remedy to cause vomiting in the man who has been bitten by any type of snake), the words for *quelque serpent*

(1944:265) confirms the phonetic value of  with a word from an Edfu text (*Edfu IV*, 279,2):  . Correctly written, the epithet 'the Two Female Companions', (Isis and Nephthys) should be *rḥtj* (Faulkner 1986:151) and not *ṛḫtj*.

que ce soit (any type of snake) do not actually appear in the hieroglyphic text. It may be that he has in mind the examples of Paragraphs 43a, 56a, 59, 60, 61a, 68 and 71a, where the first line of the paragraph generally includes words along the lines of *ḫr(j) dmt, nt ḥf(ꜣw) nbt* (one who has been bitten, by any snake) (see Paragraph 71a for this particular example).

One must also consider that the sign may have been intended to be  , as the word *dmt* is never written without the *t* sign in this Papyrus. In this case, the word *nb* (any) would fall away from the transliteration and translation. It is more likely, however, that the *t* sign has simply inadventently been omitted.

7.2.112.4 Note 4

As pointed out by Sauneron (1989:113), there is a spelling error in the text which reads *swj* rather than *ḥwj*. The sign  (F18) confirms the phonetic value of *ḥw*.

7.2.112.5 Note 5

Von Deines & Grapow (1959:333–334) list the ingredient *mw nw ḥwj* as one used in a salve in the *Berlin Papyrus* (Berlin 88). Depending on which translation one chooses, it can either mean *Wasser der Flut* (flood water), or *Wasser des Regens* (rain-water). As a medicinal ingredient, rain-water first appeared in the *Berlin Papyrus*, and, assuming that there are no new mentions in any subsequently discovered medical texts, the listing of rain-water as an ingredient in the *Brooklyn Papyrus* is only the second time that it occurs. It is, therefore, an uncommon ingredient.

7.2.112.6 Note 6

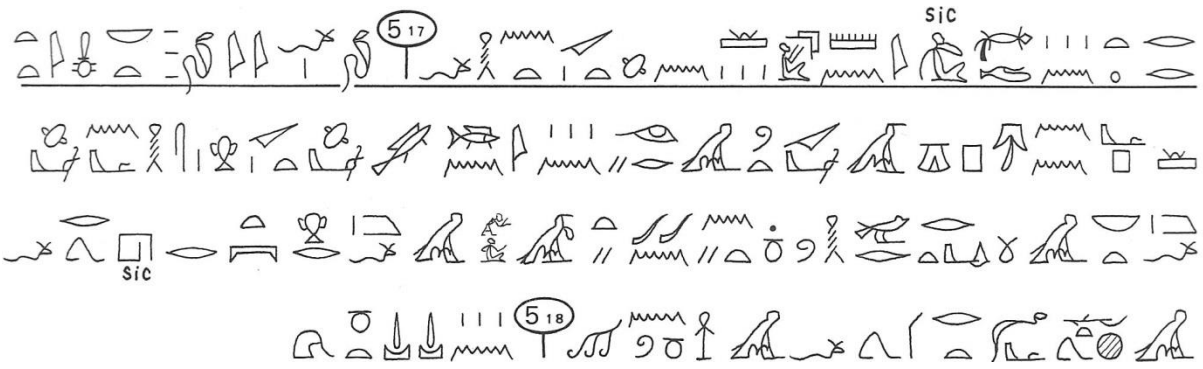
Regarding the spelling of the word *sḫꜣk*, refer to Paragraph 75a, note 7.2.93.4, and Sauneron (1989:100, note 1). An error in the spelling occurs in Paragraph 75a but not here in Paragraph 84. Hannig (2006:821) gives the exact spelling used in this paragraph as a late variant.

7.2.112.7 Note 7

See 7.2.13.2 for the note on salt of the north (*ḥmꜣt mḥt*) for Paragraph 45a.

7.2.113 Paragraph 85a

Brooklyn Papyrus, page 5, lines 16 to 18



rrt n šd jmnw n wḫd dmt nt ḥf(*ɜw*) *fy nbt mjtt: ʿpnn*(*t*) *pgɜ*(*t*) *dmɜt, tw m jrt n jnt. wt dmt ḥr.s ḥnʿ wt gs.f nbt m šs, rdjt wrḥ ntj rḫtj m gs.f ḥrj, rˈhˀ*(*p*)*r*(*t*)*.f m-ḫt ḏʿr.f m šnw n ḏɜḏɜ.*

A remedy[1] for removing[2] that which is hidden[3] from the one suffering the bite of any snake or viper, and the like: newt[4], cut open[5] (lengthwise along one side, (lit. opened out, [but] left together) as one does for the bulti fish. Dress (lit. bandage) the bite wound with it, and bandage each of its sides well[6], placing an ointment of fuller's earth on its side which is uppermost, in order to extract[7] it (the sting / fang) after locating[8] it with a hair of the head[9].

7.2.113.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.113.2 Note 2

The determinative for the word *šd* should be  (A24) instead of  (A2). The determinative  causes the verb *šd* to be read as 'exorcise, read, recite' rather than 'remove, take away'.

7.2.113.3 Note 3

The word *jmn* has a possible meaning of 'something that is secret or hidden' (Faulkner 1986:21; Hannig 2006:81). The translation given by Sauneron (1989:114) is *remède pour extraire le dard* (remedy to extract the sting).

Sauneron (1989:114) says that the word *jmnw* is unknown up to this point, although the word is used several times in this text. It appears again in Paragraphs 85b and 85d. He has also found this word in two other papyri of the Brooklyn collection[224]. Sauneron (1989:114)

[224] These two papyri are 47.218.86 (fragments 11^{5} and ^{15}) and 48.218.49 (8^{2}).

explains his interpretation of the word *jmnw* as *dard* (sting) with the following: 'it refers to something concrete which one extracts or removes, which leaves a hole, and which one finds in the bite wound, from whence it is extracted'. Ordinarily a sting is left in the flesh by an insect (such as a bee). It is not uncommon for a snake's fang to break off while biting its prey and perhaps this is what is intended by *jmnw* – something small like a sting that is so fine it appears to be hidden in the flesh.

It is interesting to note that Von Deines & Westendorf (1961:52) refer to *jmnw* as *der Verborgene* (the hidden one), which is a reference to a demon. If one chose this interpretation as the meaning for *jmnw,* then the determinative used for the verb *šd* in the text would be quite correct, for one would then translate *šd jmnw* as 'to exorcise demons' rather than 'to remove that which is hidden'. It does, however, seem that 'sting / fang' is a more likely meaning for the word *jmnw* in this instance.

7.2.113.4 Note 4

The identification of the word *ꜥpnnt* as a 'newt' (a semi-aquatic type of salamander) or 'salamander' is not definite. Hannig (2006:149) gives us three unproven possibilities: *wassermolch* (newt), *nachtschnecke* (slug), and *fischotter* (otter). Faulkner (1986:41) tentatively gives the meaning as a 'slug', while Von Deines & Grapow (1951:84) give us *wassermolch*. A meaning of 'salamander' is allocated by both Lalanne & Métra (2017:233) and Sauneron (1989:114).

Sauneron compares the remedy in this paragraph to that of Ebers 727: *kt: mḏdw nw ḫfȝt, ps*(*w*) *nd*(*w*) *ḥr mrḥt ꜥpnnt wgs.tj, ps.tj, ḫtm.tj ḥr mrḥt. rd.*(*w*) *r r*(*ȝ*).*s*. The translation given by Lalanne & Métra (2017:181) is *autre (reméde): mues de serpent, cuites et broyées avec de la graisse / huile, salamander, ouverte, et cuite, malaxée avec de la graisse / huile. Appliquer sur son orifice (d'entrée) (de l'épine)* – (another [remedy]: shed snake skin, cooked and ground up in grease / oil, salamander, opened and cooked and mixed with the grease / oil. Apply to the hole [of the entry] [of the thorn]). The similarity lies in the placing of the cut-open salamander on the hole where something has entered. In the case of Ebers 727, it is a thorn.

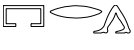
7.2.113.5 Note 5

Sauneron (1989:114) adds the words *fendue en longueur* (split length-ways). These words are not in the hieroglyphic text. However, Sauneron is quite correct in his description. The text says that the newt is to be cut like a bulti fish. Illustrations from the tombs of Rekhmire and of Mereruke in Darby *et al* (1977:371–372), and a photograph of a preserved, slabbed fish (Darby *et al* 1977:377) show that fish were sliced longitudinally from the dorsal side leaving the ventral side still intact. Ikram (2000:659) says that the fish could be cut along the ventral column or along the belly, leaving the vertebral column and head intact. In this manner the fish could be opened like a book, which is exactly the meaning of the word *pgꜣ*, and filleted. The newt in this paragraph must be sliced in the same way in order for it to be sandwiched around the bite wound.

7.2.113.6 Note 6

Sauneron (1989:115) explains the instruction *wt gs.f nbt m šs* well: the limb of the bite victim is sandwiched between the newt which has been sliced open longitudinally. One half of the newt is placed over the bite wound while the other half will be on the other side of the limb behind the wound. This is then bandaged into place.

7.2.113.7 Note 7

The hieroglyphic spelling of the verb *prj* is incorrect here. In other words, the sign  has been used instead of  . The correct spelling of the word, namely  is found in Paragraph 85b.

7.2.113.8 Note 8

The suggestion here is that the poultice (newt and fuller's earth) acts as a drawing salve by locating the fang and extracting it.

7.2.113.9 Note 9

The implication in this line is that the wound is probed with a hair to locate the sting / fang, which provides an obstruction in the wound. Probing the wound in order to extract a snake fang that has broken off is not as uncommon as one may think. In his *Handbook of African medicinal plants*, Maurice Iwu (2014:404) says, of snakebite treatment in traditional African ethnomedicine, that the wound is probed to extract any teeth that the snake has left behind.

7.2.114 Paragraph 85b

Brooklyn Papyrus, page 5, line 18

kt: ḫntt n snṯr, rdjt r r n jmnw pn r prt.f.

Another (remedy): extract (?) of terebinth[1], (for) placing against the hole of the fang in order to extract it (lit. for it to come out).

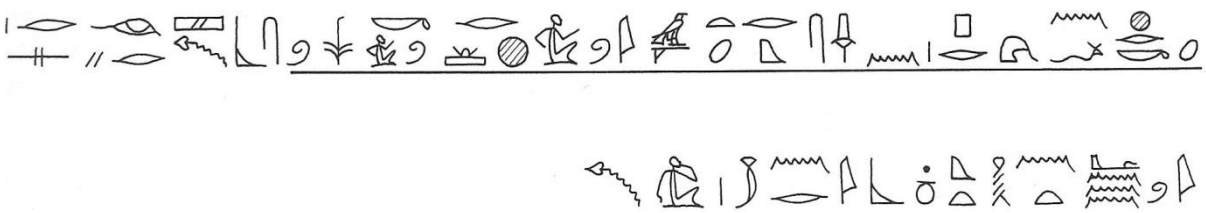
7.2.114.1 Note 1

A meaning for the word *ḫnt* / *ḫntt* is not forthcoming in the available dictionaries, but it must be a form or product of terebinth resin. See 7.2.35.3 for the note on terebinth (*snṯr*) for Paragraph 47g.

In Ebers 242 one finds the ingredient *ḫpꜣ n snṯr* which Lalanne & Métra (2017:97) translate as *perles de résine de térébinthe* (pearls of terebinth resin). Listed in the very same remedy as an ingredient is *ḫntt*. Its identity is unknown and Lalanne & Métra (2017:97) transcribe it simply as *khentet*. This word appears again in Ebers 336 in a similar form as here in Paragraph 85b: *ḫntt m snṯr* (*khentet de résine de térébinthe*) (*khentet* of terebinth resin). In Ebers 256 there are two terebinth products, namely *ḫntt n snṯr* and *snṯr* (*khentet* of terebinth, and terebinth). From this information, therefore, it would appear that *ḫntt* is a form of the terebinth resin. It is not fresh, dried, or ground, or pearls (little balls) as we have already encountered these words as forms of terebinth. Sauneron (1989:116) makes a suggestion of *extrait* (extract), and this is a distinct possibility.

7.2.115 Paragraph 85c

Brooklyn Papyrus, page 5, line 18



jr.ḫr.k n.f tp-r n ḫrp.s srqt: 'jw jnk rḫ.kw sw!' *sbš jrr*(*t*) *r.s jw* (*r*) *jꜥ nt ḥ*(*n*)*qt b*(*j*)*nr. swr qꜥ.*

You must recite[1] for him an utterance of the Controller of Serqet: 'I know it!' Expel that which makes its hole (into) a bowl[2] of beer and dates[3]. (For) drinking (and) vomiting.

7.2.115.1 Note 1

Here the sign  has a phonetic value of *jr*. Refer to Fairman (1943:116) for the example of *jrw* (meaning 'image') where represents *jr*. Sauneron (1989:116) suggests that *jr* may have been used instead of *ḏd* but *jr* is perfectly legitimate here. See Faulkner (1986:27) where *jr* may have a meaning of 'to recite a spell'. This is supported by the use of the word *tp-r* (utterance) as the object of the verb.

7.2.115.2 Note 2

The word  is unusual. Even Sauneron (1989:116) mentions that he is not entirely clear on its interpretation, other than it must be a receptacle of some sort into which the sting / fang is expelled. The alternative is that the word may mean 'mixture'. In other words, the sting / fang is expelled into a mixture of beer and dates.

In Faulkner (1986:36) one finds the word  , referring to a bowl, and in Hannig (2006:28) is the word *jꜥ*  with possible meanings of *Waschgerät, Waschgefäß, Bassin* (washing apparatus, vessel or pool).

7.2.115.3 Note 3

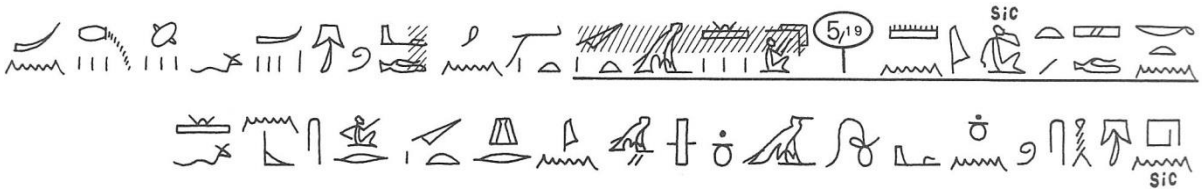
The date palm originated in ancient Mesopotamia, and from there it spread to other desert countries such as Egypt where it began to be cultivated (Gale *et al* 2000:348). According to Murray (2000c:612), use of the date palm, named *balah* or *nahl* in Arabic, and its produce, possibly began as early as the Predynastic Period.

Loret (1892:35) says that dates were often recommended for their laxative properties and Estes (2004:144) comments that they had a non-selective use but were predominantly for gut disorders. Dates could also be used to make wine, and as a sweetener – also for sweetening

beer (Manniche 1989:134). According to Manniche (1989:134), the medicinal uses of dates included ‘suppositories, unguents and poultices’, as well as a cough relief and an anthelminthic. However, they only appear twice in the *Brooklyn Papyrus* in Paragraph 100, where dried dates are used to fumigate the patient, and as an emetic here in Paragraph 85c.

7.2.116 Paragraph 85d

Brooklyn Papyrus, page 5, lines 18 to 19



kt n šdt jmnw m dmt: ns n ꜥdw, jbḥw.f, ḥsbw jt, ꜥb n hnn, ḥs(ɜ) n ꜥwꜥy(t). wnm jn ḫr(j) dmt r snb.f.

Another (remedy) for removing the fang from the bite wound: tongue of the grey mullet, (and) its teeth, roughly crushed (grains) of barley[1], horn of a gazelle / deer , mucilage of fermentation[2]. (For) eating by the one who has the bite in order for him to become well.

7.2.116.1 Note 1

Refer to 7.2.64.8 for the word *ḥsbw* and its meaning as ‘roughly crushed (grains) of barley’.

7.2.116.2 Note 2

See 7.2.41.1 for the note on mucilage of fermentation (*ḥsɜ n ꜥwɜyt*) for Paragraph 50a.

7.2.117 Paragraph 86

Brooklyn Papyrus, page 5, lines 19 to 20

rrt n dr sd(ɜ)d(ɜ) n ḫr(j) dmt: jwšš ⸢k⸣ (n) jt, ḏ̱ɜrt, ʿfɜ, ḏ̱ɜjs, ḥmɜt mḥt. nḏ̱ snʿʿ m ḫt wʿt. wt ḫr(j) dmt ḥr.s.

A remedy[1] to expel trembling[2] in the one who has the bite wound: gruel[3] of barley, carob pods[4], wild lettuce (or sweet clover)[5], wild rue[6], salt of the north[7]. Crush smoothly into a homogenous mixture. Dress (lit. bandage) the one who has the bite with it.

7.2.117.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫ̱rt* in this manuscript.

7.2.117.2 Note 2

The word *sdd* is a variant of the words *sdɜ* and *sdɜdɜ*. It is noted that an unusual hieroglyph  is used instead of  (G33 – the egret). The bird used here in Paragraph 86 has a ring around its head, and it does appear in Hannig (2006:854) as an alternative for the sign G33 (egret) in the spelling of the word *sdɜdɜ*.

7.2.117.3 Note 3

The sign following the word *jwšš* is, no doubt, incorrect and it was probably intended to be  , as Sauneron (1989:117) indictes. In Paragraph 76 we find a similar ingredient, being *jwšš n dqw jt* (gruel of barley flour). Paragraph 76 provides a remarkably similar recipe for a bandage which also includes carob pods, wild rue and salt of the north. Paragraph 76 includes fat and honey in the recipe, while Paragraph 86 incorporates wild lettuce (or sweet clover) into the mixture.

7.2.117.4 Note 4

See 7.2.62.6 for the note on carob pods (*ḏ̱ɜrt*) for Paragraph 58.

7.2.117.5 Note 5

See 7.2.32.2 for the note on wild lettuce (or sweet clover) (*ʿfɜ*) for Paragraph 47d.

7.2.117.6 Note 6

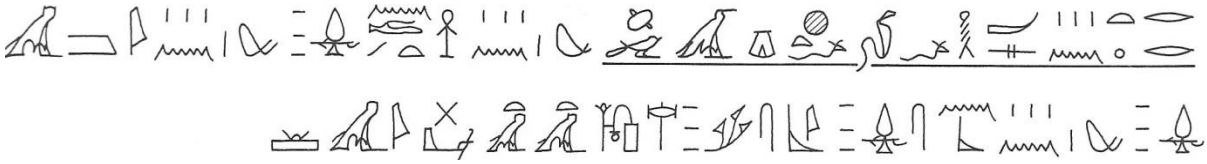
See 7.2.2.4 for the note on wild rue (*ḏ̱ɜjs*) for Paragraph 40.

7.2.117.7 Note 7

See 7.2.13.2 for the note on salt of the north (*ḥmɜt mḥt*) for Paragraph 45a.

7.2.118 Paragraph 87a

Brooklyn Papyrus, page 5, line 20



rrt n ps(ḥ) ḫf(ɜw) ḫft gɜw: ḏrḏw n šnḏt, ḏrḏw n jmɜ, ḏrḏw n nbs, jbs. nḏ snʿʿ. tmtm jm.

A remedy[1] for the bite of a snake when it is narrow: leaves of the Nile acacia[2], leaves of the meru tree[3], leaves of zizyphus[4], *ibes* plant[5]. Crush finely. Sprinkle[6] (the wound) with it.

7.2.118.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.118.1 Note 2

See 7.2.24.1 for the note on the Nile acacia (*šnḏt*) for Paragraph 46h.

7.2.118.3 Note 3

See 7.2.18.6 for the note on the meru tree (*jmɜ*) for Paragraph 46a.

7.2.118.4 Note 4

The plant *nbs* (zizyphus) is also known as Christ thorn or jujube (*Zizyphus spina Christi*) (see 8.4.4.17). Zizyphus (see Figure 90 below) occurs in North Africa, Palestine, and the drier parts of West Africa, and it once grew extensively in the Nile Valley (Darby *et al* 1977:702). The dried fruits of this plant have often been found in tombs dating from the Predynastic Period onwards (Gale *et al* 2000:347).

Figure 90: Zizyphus (*Ziziyphus spina Christi*)[225]

The leaves of this shrub could be used to treat constipation or used as an enema. In addition, bread could be made from the fruit, which was also used medicinally as a bandage or taken to treat liver disease (Manniche 1989:158). Darby *et al* (1977:703) say that zizyphus was used medicinally as an emetic, for wound applications and also in treatments to be ingested. In the *Brooklyn Papyrus* it is used only once – here in this particular treatment – where its leaves are sprinkled on a bite wound.

7.2.118.5 Note 5

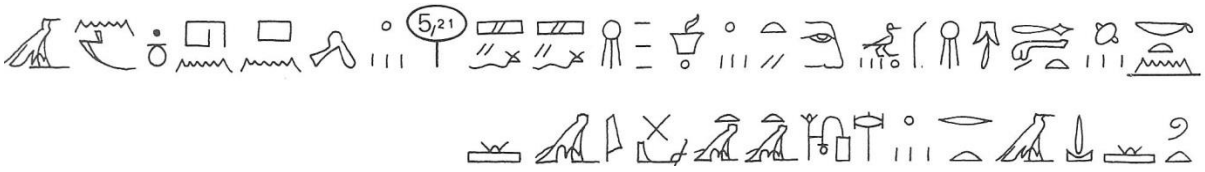
The identity of the *jbs* plant is unknown. See 7.2.34.1 for the note on the *jbs* plant .

7.2.118.6 Note 6

This word *tmtm* also appears in Paragraph 64b where it is used as an adjective to describe the state of the remedy: *rrt tmtm* (a pulverised remedy).

7.2.119 Paragraph 87b

Brooklyn Papyrus, page 5, lines 20 to 21



kt n: ḥs ꜥ3 šw, qmyt, stj, snṯr šw, šfšf(t), p3qyt n hnw n m3w, ḏ3rt. nḏ snꜥ. tmtm jm.

[225] Photograph of zizyphus (*Zizyphus spina Christi*): 'Zizyphus-areva-israel.jpg' by Dov Grobgeld is released into the public domain. Source: Wikimedia Commons.

Another (remedy) of: dried donkey droppings, gum[1], yellow ochre[2], dried terebinth[3] resin, mud(?)[4], fragment of a new pot[5], carob pods[6]. Crush smoothy. Sprinkle (the wound) with it.

7.2.119.1 Note 1

Regarding the word *qmyt*, the sign  (G38 in Gardiner 1957:471) used here appears to be in place of  (G41 in Gardiner 1957:472) which is the more regularly used determinative for gum or resin. Refer to Paragraph 71a, 7.2.83.3, note 3.

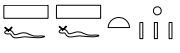
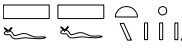
7.2.119.2 Note 2

See 7.2.35.1 for the note on yellow ochre (*stj*) for Paragraph 47g.

7.2.119.3 Note 3

See 7.2.35.3 for the note on terebinth (*snṯr*) for Paragraph 47g.

7.2.119.4 Note 4

Sauneron (1989:118) suggests that the word *šfšft* means 'mud'. Hannig (2006:884) and Von Deines & Grapow (1959:492) all give possible meanings of *Schlamm* (mud). This translation of the word *šfšft* as 'mud' is not confirmed, however, and it does not appear in Harris's (1961) extensive work on minerals in ancient Egypt. The spelling  which we have here in the *Brooklyn Papyrus* differs slightly from the spellings that occur in the *Ebers* and *Hearst Papyri*, which are  and  .

7.2.119.5 Note 5

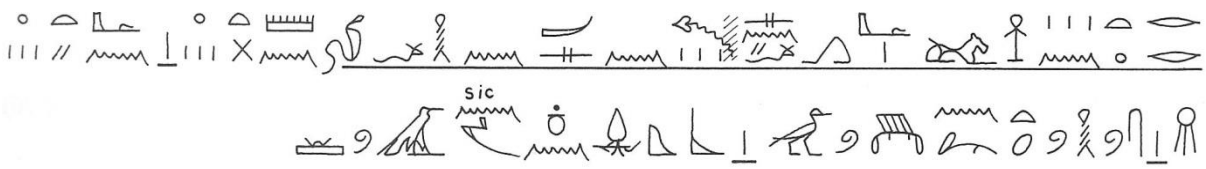
This ingredient also appears in Paragraph 78a. The significance of a fragment of a new pot (as opposed to a fragment of an old pot) is that it has not been contaminated in any way. This is quite important in terms of magic, and, as Pinch (2006:80) explains, it was very important how items and ingredients were selected and certain items could not be contaminated by any previous use.

7.2.119.6 Note 6

See 7.2.62.6 for the note on carob pods (*ḏꜣrt*) for Paragraph 58.

7.2.120 Paragraph 88a

Brooklyn Papyrus, page 5, line 21



rrt n šnᶜ snf n ps(ḥ) n ḫf(ɜw): mnt: 1, *ᶜntyw šw*: 1, *swḫ(w)t nj*[*ɜw*]*w*: 1, *bɜq n* ⌜*n*⌝*mɜwj*.

A remedy[1] to halt bleeding from the bite of a snake: *menet*[2]: 1, dried myrrh[3]: 1, ostrich[4] egg[5]: 1, fresh (lit. 'new') moringa oil.

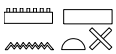
7.2.120.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.120.2 Note 2

Sauneron (1989:119) does not comment on the problem posed in this paragraph by the spelling of the word  (*mnt*), which is not found in the dictionaries, and which he translates as *résine* (resin).

This word  (*mnt*) is similar to the word  (*mn qmyt*), seen previously in Paragraphs 46a, 46e and 51c. Another similar word is found in the *Ebers Papyrus* with a spelling of  (*menyt*) which Lalanne & Métra (2017:240) refer to as *menyt (résine*). Von Deines & Grapow (1959:239) say this product is unidentified, but that it is probably a resin.

Another possibility here is that the word  (*mnt*) is a misspelling of the word *mnšt*  , (red ochre). Red ochre appears in Paragraph 79a in a treatment that is also intended to stop bleeding. However, without further proof, one has to consider  (*mnt*) as a spelling error for now.

7.2.120.3 Note 3

See 7.2.66.1 for the note on myrrh (*ʿntyw*) for Paragraph 61b.

7.2.120.4 Note 4

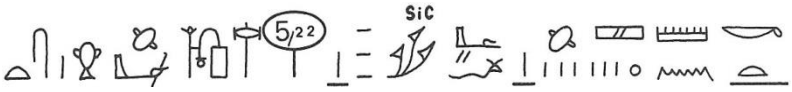
The spelling of *njw* is rather unusual here as it incorporates the biliteral sign  (*ɜw*) (F40 in Gardiner 1957:465). However, an example of a variant spelling of this word in Erman & Grapow (vol 2, 1928:202) shows the same spelling as used here in the *Brooklyn Papyrus* incorporating the sign  .

7.2.120.5 Note 5

Ostrich eggs were the most commonly used eggs in medical treatments (Darby *et al* 1977:331; Estes 2004:145), although yolk from the goose egg also found its way into treatments. Eggs, says Estes (2004:145) were chiefly used for skin and hair conditions, but had a non-specific use. In the *Brooklyn Papyrus* in Paragraph 88a, ostrich egg is used in a treatment to stop bleeding from the bite wound.

7.2.121 Paragraph 88b

Brooklyn Papyrus, page 5, lines 21 to 22



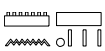
kt: mnšt: (1), *ḥs* ⌜1⌝ ⌜*ʃɜ*⌝ (*ʿf(f)*) : 1,. *nḏ snʿʿ. wt ḥr st*.

Another (remedy): red ochre (1)[1]: 1, (fly) excrement[2] ⌜wild lettuce / sweet clover⌝[3]: ⌜1⌝,: 1. Grind smoothly. Apply a dressing (lit. bandage) with it.

7.2.121.1 Note 1

See 7.2.39.2 for the note on red ochre (*mnšt*) for Paragraph 49a.

7.2.121.2 Note 2

The placement of the signs  between the word *mnšt* –  (red ochre) – and a vertical stroke (indicating ingredient quantity) is confusing. Perhaps the signs  should have been

placed after the vertical stroke.

The word ꜥff  is also potentially misleading because of the determintive  (M2 in Gardiner 1957:478), which is the general determinative for 'plant'. This causes one to think that the word may be ꜥfꜣ (wild lettuce or sweet clover), instead of ꜥff (fly) which should have qualified the word *ḥs*.

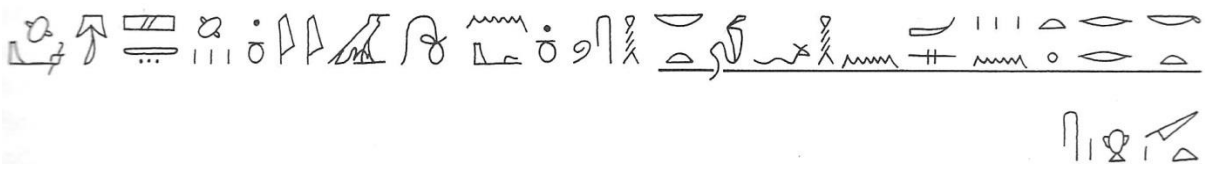
In Paragraph 79a one finds the same word  but with G38 (Gardiner 1957:471) as the determinative and this presents us with the word ꜥff, meaning 'fly', because G38 can be used in hieratic as a determinative for 'insects'. The treatment in Paragraph 79a is also one to control bleeding, but only has two ingredients, one being fly specks and the other being red ochre. It is highly likely that a) the ingredients here in Paragraph 88b are identical to those in Paragraph 79a and that the vertical sign in this paragraph should not have been written after the signs  , and that b) the determinative  is incorrect and should be identical with the determinative used for the word ꜥff in Paragraph 79a. Thus far the *Brooklyn Papyrus* has been very specific about the source of excrement and it is unlikely that this paragraph is any different. If this is the case, then ꜥfꜣ (wild lettuce or sweet clover) is not an ingredient in this recipe, which then only contains two ingredients.

7.2.121.3 Note 3

See 7.2.32.2 for the note on wild lettuce (or sweet clover) (ꜥfꜣ) for Paragraph 47d.

7.2.122 Paragraph 89

Brooklyn Papyrus, page 5, line 22



rrt n psḥ n ḥf(ꜣw) *nbt: ḥsꜣ n ꜥwꜣyt, ḥs št*(w). *wt dmt ḥr.s*.

A remedy[1] against the bite of any snake: mucilage of fermentation[2], tortoise[3] droppings. Dress (lit. bandage) the bite wound with it.

7.2.122.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.122.2 Note 2

See 7.2.41.1 for the note on mucilage of fermentation (*ḥsꜣ n ꜥwꜣyt*) for Paragraph 50a.

7.2.122.3 Note 3

This unusual spelling of the word *štw* (tortoise) is found as a variant spelling in Erman & Grapow (vol. 4, 1930:557), who also give  (F27 in Gardiner 1957:464) as an alternative determinative to  (I2 in Gardiner 1957:476). Interestingly this spelling differs from that in Paragraph 78a which is  .

7.2.123 Paragraph 90a

Brooklyn Papyrus, page 5, lines 22 to 24

rrt n snb ḫr(j) dmt n ḥf(ꜣw) nbt: jṯrw, r(w)d.f m hbnt. wn gꜣbw(t).f mj sr(w)t. ḏꜣḏꜣ.f mj ꜥfꜣ. pdsw(t) (ḥ)rr(wt).f mj sšn. pr(t).f mj qr(w). nt m-(ḫ)nw pr(t).f mj pr(t) tḫw, wmt dšrt. nḏ snᶜᶜ, ḫr.tw.f, ḥr ḥ(n)qt nḏmt. swr jn wḫd dmt. snb.f ḥr-ꜥwy.

A remedy[1] for restoring health to the one who has the bite wound of any snake: khair[2], which grows (lit. it prospers) at Hibis. Its leaves are like thorns. Its crown (lit top) is like wild lettuce (or sweet clover). Its flower buds[3] (lit. the small balls of its flowers) are like the lotus. Its fruit is like *qr*?[4] The inside of its fruit is like the seeds of the *tekhu*[5] plant, thick and red.

To be crushed finely[6], one has to say[7], in sweet beer[8]. (For) drinking by the one suffering the bite. He will heal immediately.

7.2.123.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.123.2 Note 2

After consultation with Vivi Täckholm[226], Sauneron (1989:120) identifies the *jṯrw* plant, as *Capparis decidua* (see Figure 91 below). One of its common names is 'khair'[227]. In Egypt *Capparis decidua* can be found in deserts and dry areas (Nazar *et al* 2018:2) and it is leafless, with the exception of young plants.

The young leaves are 3.5–20 mm in length and 0.5–2 mm in width. They are mucronulate (meaning that they end in a sharp point) (Kamel *et al* 2009:30). This fits in with the description in Paragraph 90a of the *Brooklyn Papyrus* of the leaves of the *jṯrw* being like thorns. In addition, a pair of spines is located at each twig node (Nazar *et al* 2018:2). The colour of the flowers ranges from pink with red veins (Nazar *et al* 2018:2) to red or scarlet (Kamel *et al* 2009:30). The fruit are pink berries which become black as they mature (Kamal *et al* 2018:2) and are even 'intensely red' (Kamel *et al* 2009:30) (see Figure 92 below).

Figure 91: Flowers of *Capparis decidua*[228]

Figure 92: Ripe berries of *Capparis decidua*[229]

[226] Vivi Täckholm was a Swedish botanist, a professor of botany at Cairo University and an author of several botanical publications including *Student's Flora of Egypt* (1941).
[227] Other common names of *Capparis decidua* include Kari, Caper, Karyal, Hanbag, Karil, Kabra etc. (Nazar *et al* 2018:2).
[228] Photograph of *Capparis decidua* flowers Mukash Sarawag (2014) is used under Creative Commons license CC BY-SA 4.0.

Both *Capparis decidua* and *Capparis spinosa* grew in Egypt in ancient times. From the *Capparis spinosa*, a plant which was used by the Copts to treat wounds (Manniche 1989:83), comes what we know as 'capers'. Sauneron is convinced that the *itjerou* plant was the *Capparis decidua*, and it is very likely that the Hibis region plant mentioned in recipe 66a is indeed *Capparis decidua*.

7.2.123.3 Note 3

Sauneron (1989:120) quite correctly translates *pdswt ḥrrwt.f* as *boutons des ses fleurs* – flower buds. However, the word  (*rr*) does need some consideration. Sauneron (1989:120) refers to his note 2 for Paragraph 66a where this word, which appears to be an abbreviated form of the word *ḥrrt* (flower), is first encountered, but Sauneron (1989:91) also considers that it may be an error in the text and could be  , *rd* (shoot of a tree) (Faulkner (1986:154). However, the spelling in this paragraph is identical to the spelling in Paragraph 66a, and as it is being compared to a lotus, the word mustis more likely to refer to a flower. Therefore, the word  (*rr*) is not a scribal error and should be considered as an abbreviated form of the word *ḥrrt*.

7.2.123.4 Note 4

The word *qr*, to which the khair fruit is being compared, does not appear in the dictionaries. It must be a fruit or berry of some sort. Sauneron (1989:121) suggests that *qr* is reminiscent of the word *qrqr* that appears in Paragraph 66a.

Figure 93: Gall nut[230]

[229] Photograph of *Capparis decidua* berries by L. R. Burdak, (2009) is used under Creative Commons license CC BY-SA 3.0.
[230] Photograph of the gall nut: 'Oak gall (2067529676).jpg by Franco Folini (2007) is used under Creative Commons license CC BY-SA 2.0.

The word *qrqr* can refer to a deciduous plant, but Sauneron (1989:92) felt that it may even be something like a gall (see Figure 93) above that grows on certain plants such as the sycamore tree. Gall nuts, which are swellings on plants caused by insects or injury to the plant, were used medicinally in ancient Egypt (Estes 2004:146).

7.2.123.5 Note 5

The identity of the *tḫw* (tekhu) plant is unknown. Suffice to say that its fruits were comparable to those of the *Capparis decidua.* Darby *et al* (1977:787) say that two jars of oil were found in the palace of Amenhotep III, and were labeled 'oil of *tḫ*(*w*)'. This oil was made from the seeds of an aromatic plant and it was used in perfume.

7.2.123.6 Note 6

The recipe does not specify which part or parts of the khair plant are to be used. Its flowers and berries are notable for their colour so these may be the parts of the plant that were used. As the tree is mainly leafless, it is not likely to be the leaves. However, Nazar *et al* (2018:5) say that in folklore it is the tender leaves and top shoots of the khair plant that are used. A powder is made from them and they are used as an antidote to poison.

7.2.123.7 Note 7

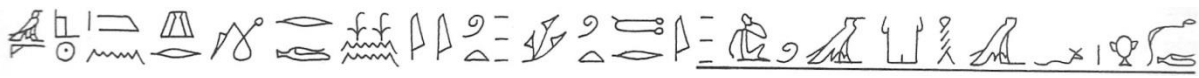
This phrase *ḫr.tw.f* is not given as a separate phrase by Sauneron (1989:120) but seems to be included in his translation by incorporating it as a future indicative: *elle sera broyée finement* (it will be crushed finely).

7.2.123.8 Note 8

See 7.2.7.6 for the note on sweet beer (*ḥnqt nḏmt*) in Paragraph 43a.

7.2.124 Paragraph 90b

Brooklyn Papyrus, page 5, lines 24 to 25



ḏd ḥr.f m ḥkɜw: jṯrwt twy nn, rd ḫr gs n wsjr, m rdw pr jmjw-dwɜt.sn, smɜ mtwt bwt nṯr! *hɜ stš*! *mjw sḏ*! *sft nw wsjr, m-ˁ sḫt nw ḫnmw. pwy jwf ˁnḫ rn n jtrwt*! *nw jr.tw.f.*

Recite over him with magic spells: O this khair, which grows under the side of Osiris[1], (as) the efflux (secretion) comes out of those who are in their Duat / Underworld, kill the venom of the One Abominable to the god (lit. abomination of the god)! Seth falls! The Cat[2] inflicts a wound (on him)! Fir oil of Osiris[3], together with barley[4] (or grain) of Khnum[5]. 'This Substance (lit. flesh) of Life' (is) the name of khair! This has been done!

7.2.124.1 Note 1

At first glance, one might be tempted to think that the reference to the khair plant (see 7.2.123.2 and 8.4.2.1) growing under the side of Osiris may be related to the grain-Osiris or Osiris-bed. This was a frame made in the shape of Osiris, prone on his back, which was then packed with soil (most likely the fertile Nile mud) on which seeds were scattered. As the seeds germinated, so the process was considered to represent the god's powers of resurrection (Wilkinson 2003:122). However, there is no mention of grain in this paragraph in relation to Osiris, and the khair is said to specifically grow under his side.

The importance of the khair plant growing under the side of Osiris is discussed by Koemoth (1994). The fact that Osiris is on his side suggests that he is in the process of rebirth, or coming back to life, the evidence of which Koemoth (1994:234) finds in the text of Spell 155 in the *Book of the dead.* The khair plant, whose epithet in this paragraph is *jwf ˁnḫ* (Flesh of Life), or as Sauneron (1989:121) has it: *la chair vivant* (the living flesh), is the antidote to death (Koemoth 1994:233–234).

Koemoth (1994:234) points out the interesting relationship between the khair plant and the secretions issued from the inhabitants in the Duat (*m rdw pr jmjw-dwɜt.sn*). The inference is

that the roots of the plant descend into the Underworld where they are able to access the rejuvenating powers of Nun, thus creating a link between Nun and the body of Osiris. These rejuvenating powers are transmitted via the roots into the body of Osiris and bring him back to life (Koemoth 1994:234–235).

Likewise, Wilkinson (2003:117–118) explains that some New Kingdom royal tombs has deep well-shafts and steeply descending passageways which symbolised a descent into the regenerative waters of Nun, creating a connection, like the roots of the khair plant, which enabled rebirth and recreation.

7.2.124.2 Note 2

'The Cat' is most likely a reference to the 'Cat of Heliopolis' (Sauneron 1989:121), or the Great Tom Cat who slays Apep under the sacred *ished* tree, the scene of which is depicted in Chapter 17 of the *Book of the dead* (Wilkinson 2003:221).

Figure 94: The Great Tom Cat[231]

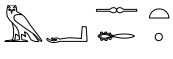
The Great Tom Cat (see Figure 94 above) was considered to be a form of Ra (Pinch 2002:107–108), and scenes in private tombs and papyri tombs show Ra or Hathor appearing in feline form, according to Wilkinson (2003:223).

7.2.124.3 Note 3

Pine oil (*sft*) was one of the seven sacred oils. Other than this, it is not clear what its specific link with Osiris may have been.

[231] Photograph of the Great Tom Cat: 'Ra as a cat attacking Apep' by Hajor (2004) is used under Creative Commons license CC BY-SA 3.0.

7.2.124.4 Note 4

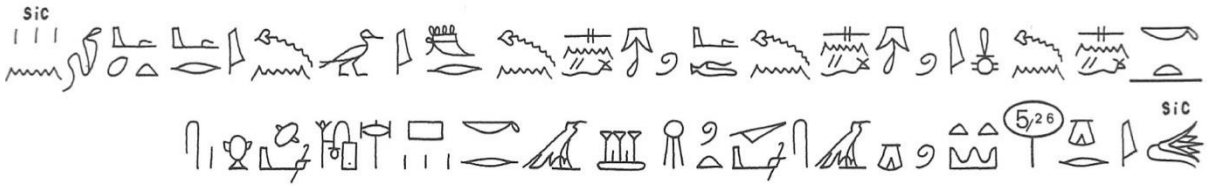
Sauneron (1989:121–122) appears to have a problem with the word *sḫt*, which he reads as *mšḫt*. Hannig (2006:814,) gives a possible meaning for *sḫt* as *Hordeum polystichem*, which is 'barley'. The *Brooklyn Papyrus* usually uses the word *jt* for 'barley' (*Hordeum vulgare*) and Sauneron seems to be reading the word *sḫt* as if it incorporates *m* at the beginning, but if one reads  as *m-ʿ sḫt,* meaning 'together with barley', rather than try to make sense of *msḫt*, then there is no confusion.

7.2.124.5 Note 5

The possible link between Khnum and barley is not an immediately obvious one. Khnum's name may be given in this paragraph because he was a creator god who fashioned humans and animals on his potter's wheel and was credited with infusing life and health into his creations (Pinch 2002:153). It may simply be Khnum's role as a 'controller of the Nile' (Wilkinson 2003:195) and, therefore, the annual inundation of the Nile that was relied upon for a good crop harvest that links him to barley.

7.2.125 Paragraph 90c

Brooklyn Papyrus, page 5, lines 25 to 26



kt: snf n mjw, snf n ʿdw, snf n ḏry(t), snf n jʿrʿt, ‹snf› n ‹dpy› jgrt, wgs tw šw, škr. nḏ snʿʿ. wt ḥr.f.

Another (remedy): blood of a cat, blood of a grey mullet, blood of a kite, blood of a cobra, ‹blood›[1] of a ‹crocodile›[2] of the necropolis (lizard), it is cut open / gutted[3] and dried, amber[4]? Grind smoothly. Apply a dressing (lit. bandage) with it.

7.2.125.1 Note 1

The word '*snf*' has been omitted by the scribe.

7.2.125.2 Note 2

As pointed out by Sauneron (1989:122), the sign  (M9 in Gardiner1957:480) has mistakenly been used for  (I3 in Gardiner 1957:475). The words 'crocodile of the necropolis' appears to refer to a lizard of some sort. Sauneron (1989:122) says that Herodotus writes of a *crocodile de terre* (crocodile of the earth), and this is to be equated with the *stellion spinipède* and *stellion des Anciens* spoken of by Geoffroy Saint-Hilaire[232].

Figure 95: Egyptian dab lizard (*Uromastyx aegyptica*)[233]

One can now positively identify *stellion spinipède* as the Egyptian dabb lizard (*Uromastyx aegyptica* – see Figure 95 above). It is a very large lizard and is a ground-dwelling species with a habitat described by El Din (2006:132) as 'gravel plains' and 'wide wadis'.

7.2.125.3 Note 3

Sauneron (1989:122) translates the word *wgs* as *fendu en deux* (cut in two). The text does not specifically say how the 'crocodile of the necropolis' has been filleted, but perhaps it is in a similar manner to the newt in Paragraph 85a which seems to have been sliced in two like a fish from the dorsal to the ventral side.

7.2.125.4 Note 4

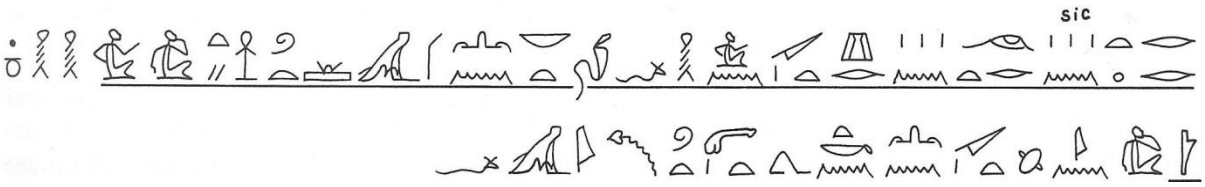
See 7.2.80.2 for the note on amber (*škr*) for Paragraph 68.

[232] Étienne Geoffroy Saint-Hilaire (1772-1844), a French naturalist, was selected to accompany Napoleon's expedition to Egypt. He was a member of the *Institut d'Égypte* and the French Academy of Sciences. https://www.wikipedia.org/wiki/Étienne_Geoffroy_Saint-Hilaire (accessed online on 29th May 2018).

[233] Photograph of the Egyptian dab lizard (*Uromastyx aegyptica*) by Eitan F (2013) is used under Creative Commons license CC BY-SA 3.0.

7.2.126 Paragraph 91a

Brooklyn Papyrus, page 5, line 26



rrt ⌜n⌝ jrrt n ḫr(j) dmt n ḥf(ɜw) nbt, nn qmɜ tw šnw: (*n*)*ḥḥ*: $^{1}/_{64}$. *swr jn wḫd dmt. nn tkn mtwt jm.f.*

A remedy[1] which is prepared[2] for the one who has the bite wound of any snake, (if) one cannot find[3] the exorcist[4]: sesame oil[5]: $^{1}/_{64}$. (For) drinking by the one suffering the bite. The venom will not attack in him.

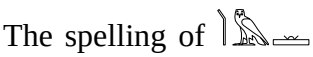
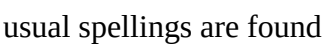
7.2.126.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.126.2 Note 2

Sauneron (1989:123) comments on the error in the first few words of the opening line of this paragraph, where the scribe has written *rrt n* (remedy for). This formula *rrt n* is usually followed by an infinitive, for example: *n dr* or *n šd*. The scribe then continues with the elements usually found after the words *jrrt n* (which is prepared for…). It is as if the text here uses a combination of both formulas.

7.2.126.3 Note 3

The spelling of  is unusual for the word *qmɜ*. The following examples of the more usual spellings are found in Hannig (2006:924):  and .

7.2.126.4 Note 4

This treatment is an interim measure until the exorcist can be found.

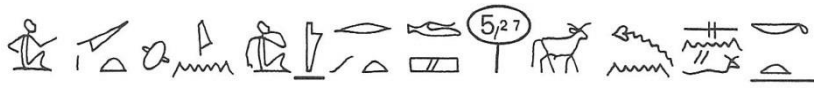
7.2.126.5 Note 5

Sauneron (1989:123) shares interesting information provided by Maimonides in *Traité des*

poisons, namely that it was believed that oil, milk or fat could be used to neutralise the destructive effect of poison by interposing between the body tissues and the poisonous substance. See 7.2.35.2 for the note on sesame oil (*nḥḥ*) in Paragraph 47g.

7.2.127 Paragraph 91b

Brooklyn Papyrus, page 5, lines 26 to 27

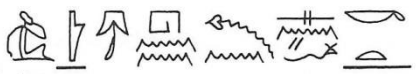


kt: snf n ḫmt dšrt: $^{1}/_{64}$. *swr jn wḏd dmt*.

Another (remedy): blood of a red cow: $^{1}/_{64}$. (For) drinking, by the one suffering the bite.

7.2.128 Paragraph 91c

Brooklyn Papyrus, page 5, line 27

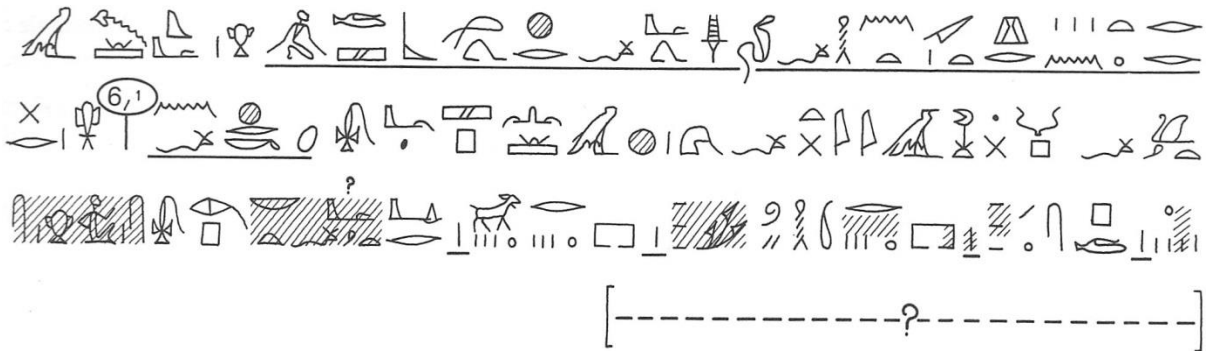


kt: snf n hnn: $^{1}/_{64}$. *swr*.

Another (remedy): blood of a gazelle/deer: $^{1}/_{64}$. (For) drinking.

7.2.129 Paragraph 92

Brooklyn Papyrus, page 5, line 27 to page 6, line 1



*rrt n ḫr(j) dmt nt ḥf(ɜw): ꜥḥꜥ.f ḫr bdš ḥr qꜥ m pḥwyt.f, wp ḫɜyt.f; tp ḫm šp, rmn srf. jr.ḫr.k n.f: sɜ-wr:*1, *pds:*1 *prt tḥwy:* 1 *prt jbw:* 1 *dj r* [*ꜥt.f nbt*] […….].

A remedy[1] for the one who has the bite wound of a snake: (when) he (tries to) stand up, he falls (down) and becomes weak on account of defecating (lit. vomiting) through his anus, (which) his illness opens up; (his) mind is confused and he cannot see (lit. his head is oblivious and he is blind)[2], and (his) shoulder is hot. You must prepare[3] for him: *sory* mineral[4]:1 *pedes*[5]: 1 pea seeds[6]: 1 seeds of the *ibou* plant[7]: 1. (For) applying to [each of his limbs][8] *kɜp.*[*s ḥr.s*] and fumigating [the person with it]. […….][9]

7.2.129.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.129.2 Note 2

The word *ḫm* may refer to a loss of consciousness rather than obliviousness, unawareness or ignorance on the part of the patient as to what is going on around him or her. It is difficult to know exactly what was intended by the scribe. The word *šp* may refer to the patient's inability to open his eyes owing to paralysis, rather than a pathological blindness. This condition could represent ptosis and, combined with a loss of consciousness, suggests that the patient may be suffering from the effects of a bite containing a neurotoxin. The lack of ability to control efflux from the anus does suggest a lack of muscle control and loss of consciousness. See 4.2.3.1 on the effects of neurotoxic venom.

7.2.129.3 Note 3

The use of the biliteral sign  to represent the word *jr* has already been established in Paragraphs 51b, 63a and 85c (see 7.2.44.2).

7.2.129.4 Note 4

See 7.2.7.4 for the note on the *sory* (*sɜ-wr*) mineral for Paragraph 43a.

7.2.129.5 Note 5

The word '*pds*' represents an unknown ingredient. According to its determinative, it may possibly, although not necessarily, be an ingredient of mineral origin.

7.2.129.6 Note 6

It is noted that this paragraph, and Paragraphs 45d and 45e, specifically prescribe the seed of the pea plant whereas the part of the pea plant to be used in other paragraphs (45b, 50a and 56a) was not specified. When one talks of 'peas', one immediately thinks of the edible seed of the plant, and therefore one might presume that this is what was intended in the other paragraphs.

7.2.129.7 Note 7

The plant named *jbw* has not been positively identified. That *jbw* is a plant is not disputed because the recipe calls for seeds to be used. A few more clues about this plant are to be found in Hannig (2006:39), namely that the *jbw* plant was used in medicine and for bread-making, that a flour (*dqr n jbw*) could be made from the plant, and that a fat or oil (*ḏdꜣ n jbw*) could be made or obtained from it. Furthermore, there appear to be two varieties: a southern *jbw* (*jbw šmʿw*), and a northern *jbw* (*jbw mḥw*).

The *jbw* plant had several uses, such as a medicine to be ingested, or to be used as a suppository, or as an ointment to be used with or without bandaging (Von Deines & Grapow 1959:20). These medicinal uses are to be found mainly in the *Ebers Papyrus*, but also in the *Hearst Medical Papyrus*. Internal use of the *jbw* plant was exclusively for the ꜥꜣꜥ (*aaa*) disease[234] (Von Deines & Grapow 1959:22). Bread-making with the *jbw* plant is also referred to by Von Deines & Grapow (1959:21) and Darby *et al* (1977:679).

In Upper Egypt, certain varieties of lettuce were used to make 'grease' from a milky emulsion or latex that exuded from the stems when cut (Aufrère 1986:4). There is a reference to the ingredient *ḏdꜣ n jbw* in Ebers 253, which Lalanne & Mètra (2017:101) refer to as *grasse de la (plant-) ibou* (grease of the *ibou* [plant]). The French word *grasse* does not only refer to fat or grease, but also to a substance that is sticky or slimy, like the white latex that exudes from lettuce stalks.

Although no closer to a firm identification of the *jbw* plant, it is evident that it was used medicinally, and that its stalks exuded a substance rather like that of a lettuce plant.

[234] There is no conclusion as to the exact identity of the *aaa* disease despite numerous references to it in the medical papyri. Opinions range from blood in the urine, possibly caused by bilharzia or schistosomiasis, evil spirits impregnating victims with poisonous semen, to roundworm. For a good overview, see Nunn (2002:63).

7.2.129.8 Note 8

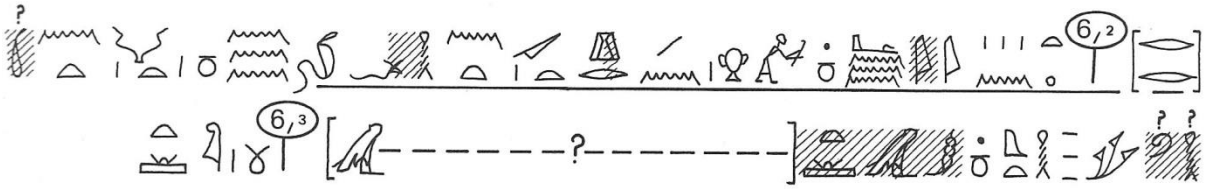
Sauneron (1989:124) restores the words *ꜥt.f nbt* into the first lacuna. He also endeavors to restore the words in the second lacuna so that the line reads *kɜp*.[*s ḥr.s*], although he does say that the sign for the word *ḥr* is not certain. The restoration is plausibly based on Paragraphs 99a, b and c:  (*kɜp s ḥr.s* – fumigate the person with it).

7.2.129.9 Note 9

The missing text in the large lacuna could not be restored.

7.2.130 Paragraph 93a

Brooklyn Papyrus, page 6, lines 1 to 3



[*rr*]*t n jꜥt ḥr n ḫr*(*j*) *dmt nt ḫf*(*ɜw*)*: mw wpt nt* [*tḥw*]*, ḥ*(*n*)*qt nḏmt*. [*… …m*] *šs mɜꜥt*.

A remedy[1] for washing (rinsing) the face of the one who has the bite wound of any snake: water from the top of the [pea plant][2], sweet beer[3]. [… …][4] it is truly excellent.

7.2.130.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.130.2 Note 2

The hieratic signs in the lacuna are not particularly legible and Sauneron (1989:125) indicates that he is not certain that the restoration of  (*tḥw*) is correct.

7.2.130.3 Note 3

See 7.2.7.6 for the note on sweet beer (*ḥnqt nḏmt*) in Paragraph 43a.

7.2.130.4 Note 4

It makes sense that the last hieroglyph in the lacuna is  (*m*) because *m šs mꜣꜥt* is a well-known phrase and the words *šs mꜣꜥt* are perfectly legible after the lacuna. The rest of the missing text in the lacuna might possibly have explained how the treatment is to be applied to the face of the patient.

7.2.131 Paragraph 93b

Brooklyn Papyrus, page 6, line 3

kt: mw, ꜥfꜣ, bjt. nfr nfr. jrtjwj.

Another (remedy)[1]: water, wild lettuce (or sweet clover)[2], honey. Very good. Both eyes[3].

7.2.131.1 Note 1

The small fragment of text of this particular recipe does not specify what it is for or how it is to be used. However, as it follows on from Paragraph 93a, one could safely assume that it is an alternative for the treatment in Paragraph 93a and is used to rinse the face of the patient.

7.2.131.2 Note 2

See 7.2.32.2 for the note on wild lettuce (or sweet clover) (*ꜥfꜣ*) for Paragraph 47d.

7.2.131.3 Note 3

The signs  provide an unusual spelling for the word *jrtjwj* (or *jrtj*). In Hannig (2006:99) one finds the more conventional spelling of  , while the spelling here in this paragraph uses only the pupils of the eyes rather than the whole eye. Nowhere in Erman & Grapow (vol. 1, 1926:106–108), with their multitude of variant spellings for *jrt, jrtj* or *jrtjwj*, does one find the signs  either.

Elsewhere in the *Brooklyn Papyrus* these signs  are used to mean *jrtjwj* (both eyes) – see Paragraphs 20, 23 and 30. The spelling in this paragraph appears to be an abbreviation, for

not only are the eyes incomplete, but so is the sentence. One can only presume, as Sauneron (1989:126) does, that it means that the treatment has been witnessed or observed and considered to be very good, and he translates: *a été experimenté* (it has been tested / experienced).

7.2.132 Paragraph 94

Brooklyn Papyrus, page 6, lines 3 to 5

rrt n dr dgm(*t*) *n ḫr* [*dmt: … … jwšš n*] *nḏ n jt, ḏ*ɜ*rt, ʿd n ḫmt, pr*(*t*) *ḏ*ɜ*js, ḥm*ɜ(*t*) *mḥ*(*t*)*, bjt. nḏ snʿʿ ḥr* [*…*].[*wt.ḥr.k*] *s*(*j*) *r ḏr.f.*

A remedy[1] for expelling unconsciousness[2] in the one who [has been bitten: … … gruel (made) of] flour of barley, carob pod[3], fat[4] of a cow, seeds of wild rue[5], salt of the north[6], honey. Crush finely with […][7]. [You need to plaster[8]] the person over all of his body (lit. him)[9].

7.2.132.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.132.2 Note 2

For the translation of the word *dgmt* as ‘unconsciousness’, see 7.2.95.2 for an explanation of the same word in Paragraph 76.

7.2.132.3 Note 3

See 7.2.62.6 for the note on carob pods (*ḏ*ɜ*rt*) for Paragraph 58.

7.2.132.4 Note 4

See 7.2.33.1 for the note on fat (*ꜥḏ*) for Paragraph 47e.

7.2.132.5 Note 5

See 7.2.2.4 for the note on wild rue (*ḏ̱ȝjs*) for Paragraph 40.

7.2.132.6 Note 6

See 7.2.13.2 for the note on salt of the north (*ḥmȝt mḥt*) for Paragraph 45a.

7.2.132.7 Note 7

Owing to the missing text in the lacuna, one does not know what the ingredients are crushed in. It is usually a carrier liquid such as wine, beer or sweet beer. The name of the carrier liquid in this manuscript generally follows the words *nḏ snꜥꜥ ḥr* (crush finely in…).

7.2.132.8 Note 8

It is unlikely, but not impossible, that the mixture is going to be used under a bandage if the entire body is supposed to be covered. It is more likely, however, that this mixture is applied to the body without a bandage. It is therefore better to translate the verb *wt* as 'to plaster' rather than 'to bandage' in this particular instance.

7.2.132.9 Note 9

As pointed out by Sauneron (1989:126), the treatment ingredients of Paragraph 94 are almost identical to those in Paragraph 76. Both contain a gruel made of barley flour, carob pod, fat (Paragraph 94 specifies that it is 'cow fat' while Paragraph 76 leaves it as 'fat'), seeds of wild rue, salt of the north, and honey.

Paragraph 76 instructs the ingredients to be formed into a homogenous mass, and does not include the instruction *nḏ snꜥꜥ* (crush finely). Paragraph 94, however, gives the instruction for the ingredients to be crushed finely, but does not include the words *m ḥt wꜥt* (into a homogenous mass) (Sauneron 1989:126).

There is a lacuna after *nḏ snꜥꜥ ḥr* in Paragraph 94, so one does not know what the ingredients are to be crushed with. In Paragraph 76 the instruction is to bandage with the mixture, while

in Paragraph 94 it appears that the entire body of the patient must be covered. One might therefore assume that the treatment in Paragraph 76 may be for the bite wound only – although this is not explicitly stated in the treatment.

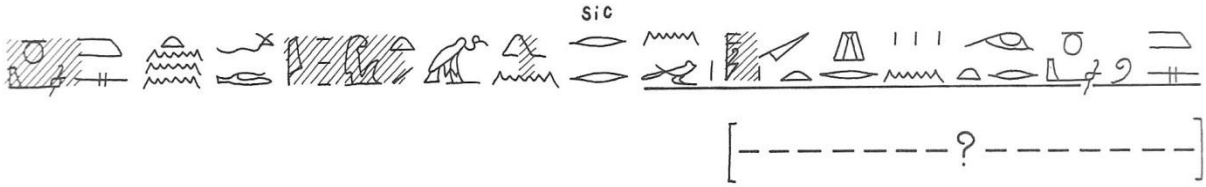
Table 7: Differences between Paragraph 76 and Paragraph 94

Paragraph 76	**Paragraph 94**
rrt dr dgm(*t*) *n wḫd dmt* (a remedy for expelling unconsciousness in the one suffering the bite)	*rrt n dgm*(*t*) *n ḫr*(*j*) *dmt* […] (a remedy for expelling unconsciousness in the one suffering the bite)
jwšš dqw jt (gruel of powder of barley)	*jwšš n nḏ n jt* (gruel of barley flour)
ꜥd (fat)	*ꜥd n ḫmt* (fat of a cow)
wt.ḫr.st (bandage with it)	*wt.ḫr.k s*(*j*) (you will plaster him)

Unfortunately, Paragraph 76 gives no clue as to the missing text in Paragraph 94 between the words *dmt* and *jwšš*.

7.2.133 Paragraph 95a

Brooklyn Papyrus, page 6, line 5



gsw jrrt n ḫr(*j*) *dmt qsn:* ⌜*r*⌝*r*(*d*) *n nrt* [*j*], *fdt*. *gs*[… …].

Ointment which is made for the one who has the bite wound (of a) dangerous[1] (snake of whatever kind): foot of a vulture[2], sweat. Smear […. …].

7.2.133.1 Note 1

Sauneron (1989:127) refers the reader to Paragraph 40 where there is a similar opening line: *rrt jrrt n ḫr*(*j*) *dmt n ḫf*(*ɜw*) *nbt qsn* (remedy to be made for the one who has the bite wound of a dangerous snake of whatever kind). The same meaning of *ḫfɜw nbt qsn* (a dangerous

snake of whatever kind) is probably intended here in Paragraph 95a. The line may have simply been abbreviated by the scribe for some reason.

7.2.133.2 Note 2

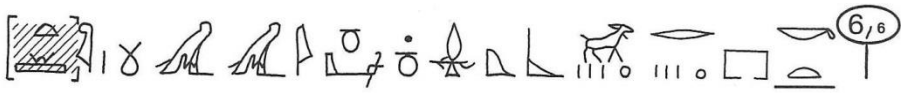
One would tend to read the hieroglyphs of  as *mwt* (mother). This exact spelling is found in Faulkner (1986:106), but it must be the word *nrt* (vulture) that is intended (for regular spellings of the word *nrt* refer to Hannig (2006:441), where no variant spelling like this is given).

The sign which follows the word *nrt* is confusing because it does not appear to be connected to *nrt* or the word which follows it, namely *fdt* (sweat). If the sign was part of the word *fdt* then the resulting word would be *jfdt* meaning 'quartet', a word that does not make sense here. Sauneron (1989:127) wonders if the word for 'burnt' should follow *nrt* because Pliny speaks of burnt vulture feathers or hearts, or burnt owl feet, being used to ward off snakes. Sauneron's suggestion that the word 'burnt' should follow on from *nrt* is not without merit. In order for the remedy to be smeared onto the body of the patient the feet would need to be in a powdered form. Burnt or dried vulture feet would be able to be ground up and mixed with the carrier liquid, which in this case seems to be sweat.

The use of vulture parts is not common in treatments. The *Ebers Papyrus* (Ebers 409) makes use of a vulture egg in an eye medication, while the eyes are utilised in another eye treatment in the *Cairo Ostracon* (ODM 1062). Blood of the vulture is incorporated into a salve in Ebers 737, and feathers are used in the *Edwin Smith Papyrus* (18,10) to ward off epidemics. The use of vulture feet is not listed in Von Deines & Grapow (1959). This use, therefore, of vulture feet in an Egyptian remedy appears to stand alone.

7.2.134 Paragraph 95b

Brooklyn Papyrus, page 6, line 6



kt: pr(*t*) *jbw, bꜣq. nḏ jm. m sš mꜣᶜt.*

Another (remedy): seeds of the *ibou* plant[1], moringa[2] oil. Cover and protect (lit. cover)[3] (the patient) with it. It is truly excellent.

7.2.134.1 Note 1

See 7.2.129.8 for the note on the *ibou* plant (*jbw*) for Paragraph 92.

7.2.134.2 Note 2

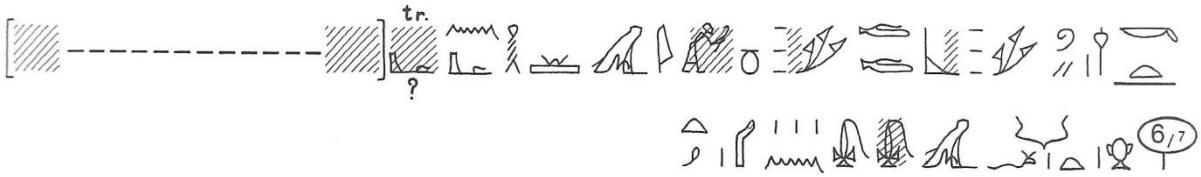
See 7.2.9.3 for the note on moringa (*bꜣq*) for Paragraph 43c.

7.2.134.3 Note 3

See 7.2.9.4 for the note on the word *nḏ* (cover / protect) for Paragraph 43c.

7.2.135 Paragraph 95c

Brooklyn Papyrus, page 6, lines 6 to 7



kt: ḥḏw, bdd(*w-kꜣ*). *nḏ jm ḥnᶜ* [… …] *ḥr wpt.f m srf n ḏbᶜ.*

Another (remedy): onion[1], watermelon[2]. Cover there together with [… …][3] on his forehead to the warmth of a finger.

7.2.135.1 Note 1

See 7.2.4.1 for the note on the onion (*ḥḏw*) for Paragraph 42a.

7.2.135.2 Note 2

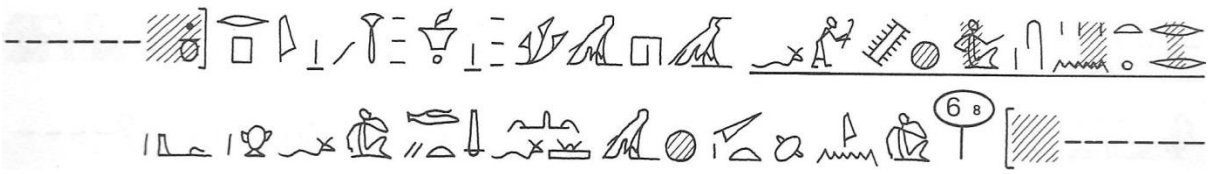
See 7.2.28.1 for the note on the watermelon (*bddw-kꜣ*) in Paragraph 46k.

7.2.135.3 Note 3

A translation here is not possible owing to the incomplete text, which is unfortunate because it most likely described the method of application of the treatment.

7.2.136 Paragraph 96a

Brooklyn Papyrus, page 6, lines 7 to 8



rrt n s(j) ḫm.f: ȝhm: 1, *snṯr wȝḏ:* 1, *jrp* […]. *swr jn wḫd dmt ḫm.f. mdt.f ḥr-ꜥ.*

A remedy[1] for the person who has lost sensation[2]: *ahem*-plant[3]: 1, fresh terebinth[4]: 1, wine […][5]. (For) drinking by the one suffering the bite wound (who) has lost sensation. He will speak immediately (lit. his speech is immediate).

7.2.136.1 Note 1

Refer to 7.2.2.1, note 1 regarding the spelling of the word *pḫrt* in this manuscript.

7.2.136.2 Note 2

Sauneron (1989:128) has chosen a translation for the word *ḫm* as ‘lost sensation’ in this context, which suggests a loss of physical awareness, rather than one of the meanings found in Faulkner (1989:190) that suggest a lack of mental awareness, such as ‘be ignorant of’ or ‘know not’.

7.2.136.3 Note 3

The *ahem* plant has not been identified. It is not listed in Von Deines & Grapow (1959) or Erman & Grapow (1926, vol. 1). This use here in the *Brooklyn Papyrus* is unusual and it may be a new plant in medical papyri.

7.2.136.4 Note 4

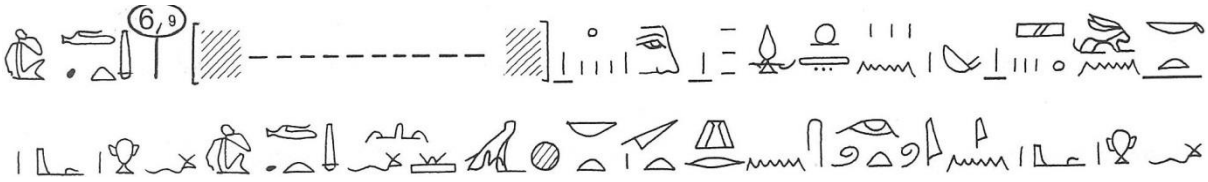
See 7.2.35.3 for note on terebinth resin (*snṯr*) for Paragraph 47g.

7.2.136.5 Note 5

The missing text immediately after the word *jrp* (wine) would most likely have specified the quantity of wine to be used because this particular recipe includes quantities. The remainder of this missing text most likely contained the usual instructions to mix the ingredients together in a homogenous mixture.

7.2.137 Paragraph 96b

Brooklyn Papyrus, page 6, lines 8 to 9



kt: wnš(*w*)*:* 1, *ḏrḏ n šnḏt:* 1, *stj:* 1. [… …] *mdt.f ḥr-ꜥ jn jw jr.tw.s n ḫr*(*j*) *dmt, nbt, ḫm.f, mdt.f ḥr-ꜥ*(*wj*).

Another (remedy): raisins: 1, leaves of Nile acacia[1]: 1, yellow ochre[2]: 1. [… …][3] He will speak immediately (lit. his speech is immediate). (If) one prepares the remedy (lit. it) for the one who has the bite wound, (of) any (dangerous snake)[4], and who (lit. he) has lost his consciousness, he will speak immediately (lit. his speech is immediate).

7.2.137.1 Note 1

See 7.2.24.1 for the note on the Nile acacia (*šnḏt*) for Paragraph 46h.

7.2.137.2 Note 2

See 7.2.35.1 for the note on yellow ochre (*stj*) for Paragraph 47g.

7.2.137.3 Note 3

The missing text of the lacuna probably contained instructions on how the ingredients must be mixed together and how they should be administered to the patient.

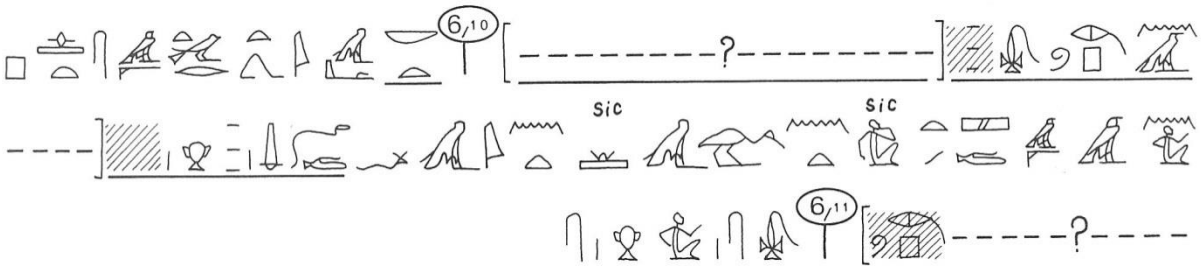
7.2.137.4 Note 4

The single word *nbt* used here may be an abbreviation by the scribe for what is intended to be

n ḫfɜw nbt qsn (by any dangerous snake). This abbreviation of the line appears again in Paragraph 97a below. Refer to 7.2.133.1 for Paragraph 95a.

7.2.138 Paragraph 97a

Brooklyn Papyrus, page 6, lines 9 to 11



nɜ kɜpw [... ...] *nbt. mj-t, wrt*! *sḫtp n.j ḥr, šdt nt gm*(*wt*) *nt jm.f. ḏd mdw ḥr* […].[... *kɜp*(?)] *s ḥr.s*(*j*).

The fumigations [for the one who has been bitten] (by) any (dangerous snake)[1]. Come, Great One! Propitiate Horus for me, (by) the removal[2] of the weakness[3] which is in him. Say magic spells over […][4]. [… fumigate(?)] the person with it[5].

7.2.138.1 Note 1

By analogy with Paragraph 40, the words in the lacuna could possibly be restored as *jrt n ḫr*(*j*) *dmt* (to be made for the one who has been bitten). The word *nbt* after the lacuna may, once again, be an abbreviation for *n ḫfɜw nbt qsn* (by any dangerous snake). Again, this is by analogy with Paragraph 40. Similarly, this same abbreviation appears in Paragraph 96b (see 7.2.137.4). Refer also to 7.2.133.1 for Paragraph 95a.

7.2.138.2 Note 2

There is an error with the determinative used with the word *šdt*. It should be  (A24 in Gardiner 1957:444) rather than  (A2 in Gardiner 1957:442), otherwise the meaning of the word is affected.

7.2.138.3 Note 3

Sauneron (1989:129) translates the line *šdt nt gm*(*wt*) *nt jm.f* as *et fait disparaître la*

prostration qui est en lui (and make the prostration, which is in him, disappear). Sauneron has allocated a meaning of 'prostration' to the word *gmwt*, rather than 'weakness'. His translation is based on a study of the few known examples of the word by Breasted. The examples studied by Breasted are found in the *Famine Stele* (1–2), *Sinouhe*, the *Book of the Dead* (edited by Naville) 7,3, and the *Bremner-Rhind Papyrus* (26[13]). The meaning conveyed in these texts is one of 'sadnesss' and 'mourning'.

A subsequent example of the word *gmwt*, discussed by Sauneron (1989:129), is found on the Statue of Heliopolis in the line  (*ḥꜥ.k m gmwt*), which Sauneron (1989:129) translates as *ton corps est dans l'état d'abattement* (your body is in a state of despondency). The French word '*abattement*' can mean 'despondency, sadness, weakness, exhaustion'. Sauneron (1989:129) feels that the word *gmwt* has less of an emotional tone to its intended meaning than just 'sadness', and that the word expresses a physical as well as emotional breakdown, and this breakdown is evoked by the determinative of the word *gmwt* with the image of a man on his knees ().

This translation of the word *gmwt* as 'prostration' is further justified by Sauneron (1989:129) as he quite rightly points out that one bitten by a snake is not filled with sadness, but rather shock and intense anxiety, and that part of the treatment involves calming the patient. The word *gmwt* therefore expresses, all at the same time, the meanings of apprehension, emotional anguish, and a physical weakness brought about by the effects of the venom.

7.2.138.4 Note 4

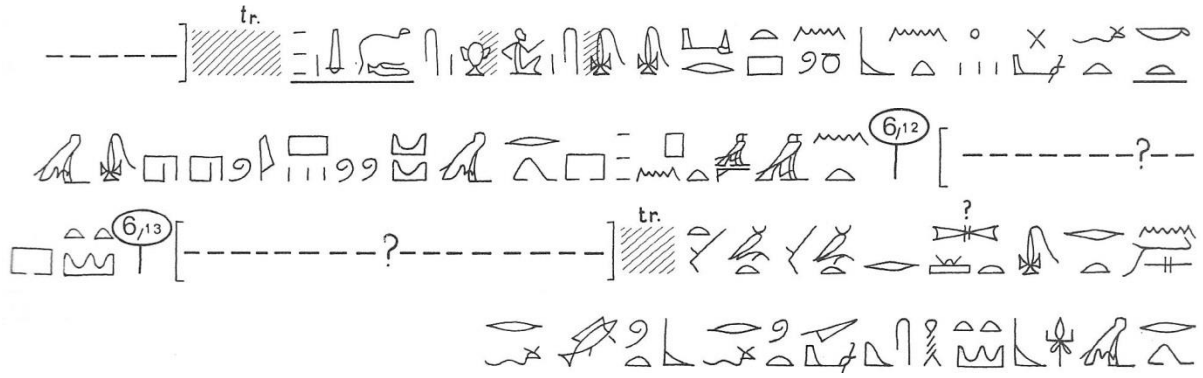
By analogy with Paragraph 79c, one could presume that the words are to be pronounced over the image (*twt*) of a deity or deities. In Paragraph 79c the words are said over images of Ptah, Isis and Serqet.

7.2.138.5 Note 5

The determinitive  after the lacuna suggests that the last word in the missing text of the lacuna is  (*kȝp*). One can be justified in this presumption after an analogy with Paragraph 98c, where one finds *kȝp s ḥr.s*. Fumigation is performed on the patient and something needs to be provided with which to make the fumigation.

7.2.139 Paragraph 97b

Brooklyn Papyrus, page 6, lines 11 to 13



kt: ⌜*ft*⌝ (*ḥwyt*) *nt bnwt. dj r ḫt, kɜp s*(*j*) *ḥr.s. ḏd mdw* [… …] […] *nt ḥr,* (*j*)*ptn pr*(*rt*) *m ḏww. jw hh m nsrt ṯs ḫt r mt. mt* [… …] […] *pr*(*rt*) *m ɜbḏw. ḥsq.tw r.f bwt r.f.*

Another (magical spell): grindings[1] of the millstone. Place on the fire, (and) fumigate[2] the person with it. Say magic spells [over …] these[3] (female entities) of Horus which come from the mountains. The blast of heat from the flame, binds the fire against death[4]. Death [… …] […][5] which goes out from Abydos. For him, one cuts up the abomination that is against him.

7.2.139.1 Note 1

The word *ft*, which Sauneron (1989:129) has translated as *râclure* (scrapings), was perhaps known to him for he does not comment on it. The closest one can get to the meaning of the word *ft* in this particular paragraph of the *Brooklyn Papyrus* is a word provided in Erman & Grapouw (vol. 1, 1926:581):  (*ft*), which they say belongs to the context of metal working: *von der Bearbeitung von Metallwaffen* (from the manufacture / processing of metal weapons). Either the word *ft* is a scribal error or it is an unknown word and is therefore not found in the dictionaries. On the other hand, the word *ḥwyt* provides a suitable meaning of *steinmehl* (stone grindings) in the known phrase *ḥwyt nt bnwt* (grindings of the millstone) (Hannig 2006:269).

7.2.139.2 Note 2

There are two identical signs  side by side, each an abbreviation for a separate word with

a different meaning. While the first one must mean *ḫt* (fire, heat), the second one is *kɜp* (fumigate), which can be deduced by comparison with Paragraphs 99b and 100.

7.2.139.3 Note 3

The word *jptn* is a very old form of the feminine plural demonstrative pronoun. The word is occasionally used religious texts in Middle Egyptian and follows after the noun used with a plural noun (see Allen 2005a:53). In this paragraph the word *jptn* does not follow a noun and so it could be read as 'these / those female entities', or beings of some kind that belong to Horus, which are feminine in gender, and which come from the mountains. Owing to the missing text, it is not clear what or who they are.

7.2.139.4 Note 4

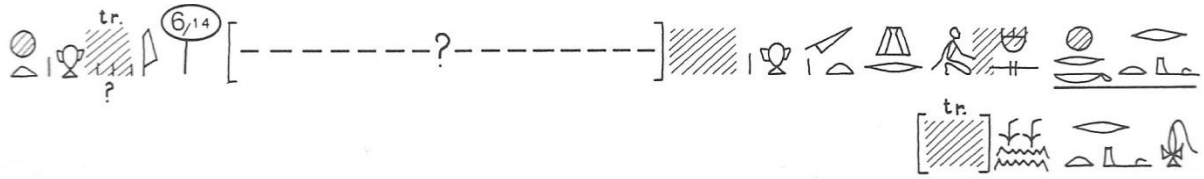
Sauneron (1989:129) translates this line as *l'ardeur sous forme de flame et la flame sous forme d'ardeur sont contre le mort* (the heat in the form of a flame and the flame in the form of heat are against death).

7.2.139.5 Note 5

After the section of missing text are the signs  which may be the determinative for a place name.

7.2.140 Paragraph 97c

Brooklyn Papyrus, page 6, lines 13 to 14

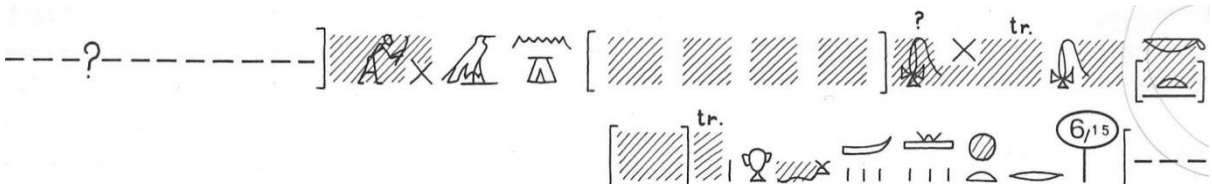


rdjᵀtᵀ.ḫr.k ḥmsj ḫr(j) dmt ḥr […]*j ḥr(j) ḫt, rdjt nn* […].

You need put the one who has the bite wound in a sitting postition on […] on the fire, placing these […].

7.2.141 Paragraph 97d

Brooklyn Papyrus, page 6, lines 14 to 15



[*kt*]*: ? ḫt ?* [… …] *ng* [… …] *r ḥ(r)t psḏw.f ḥr* […].

[Another (magical spell)]; ? fire[1] ? […] break / smash […] against the venom (lit. products)[2] of its fangs with […].

7.2.141.1 Note 1

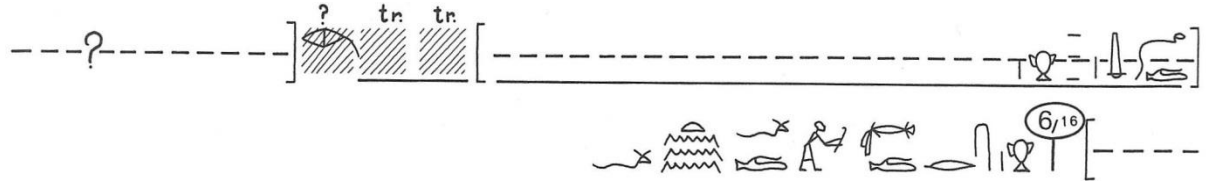
It is uncertain what words the signs  represent here.

7.2.141.2 Note 2

Sauneron (1989:130) points out that the word *ḫt* may be *ḫrt*, which would give the words *r ḫrt psḏw.f* a meaning of *contre celui concerne ses crocs* (against that which concerns its teeth). The word *ḫrt* may also mean 'products' (Faulkner 1986:195). Either way, the word *ḫrt* suggests that the venom is deposited via the snake's fangs.

7.2.142 Paragraph 98a

Brooklyn Papyrus, page 6, lines 15 to 16



[*ḏd mdw ḥr … … …*] *kɜp?*[*ḫrj dmt…*] *ḥr.s r šd fdt.f*.

[Say magical spells over[1] … … …] Fumigate? [the one who has the bite wound…][2] with it in order to remove his sweat.

7.2.142.1 Note 1

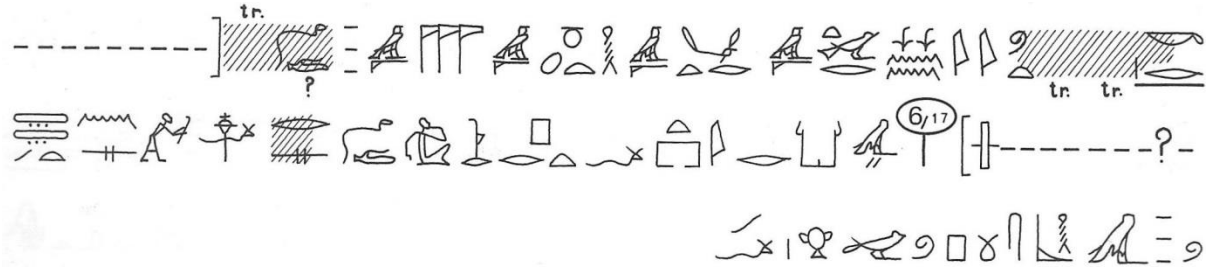
Sauneron (189:130) restores these words in the lacuna at the start of the line.

7.2.142.2 Note 2

There is a trace of the sign which could be part of the word *kɜp*. It is therefore not unreasonable to suspect that some of the words in the following lacuna might have been *ḫr(j) dmt* or *wḫd dmt*. Usually the text instructs one to fumigate 'him' (*kɜp.f*) or fumigate 'the person' (*kɜp sj*). In this particular paragraph, the lacuna is a bit longer than required for the words *ḫr(j) dmt* or *wḫd dmt*, so it might even have included the instruction *ʿšɜ sp* (numerous times) as it does in Paragraph 72d. Unfortunately the text is destroyed to the extent that it is not possible to know what it had consisted of.

7.2.143 Paragraph 98b

Brooklyn Papyrus, page 6, lines 16 to 17



kᵀrᵀ(t): **[**...**]** *twy nn wrt ḏsrt ḥnwt ntrw, ḏd* **[**... ...**]** **[***j***]***mj kɜr.f. ptr ḏd r.s ḫsf.n.s tɜwj m ḥbs pw nḏs ḥr.f.*

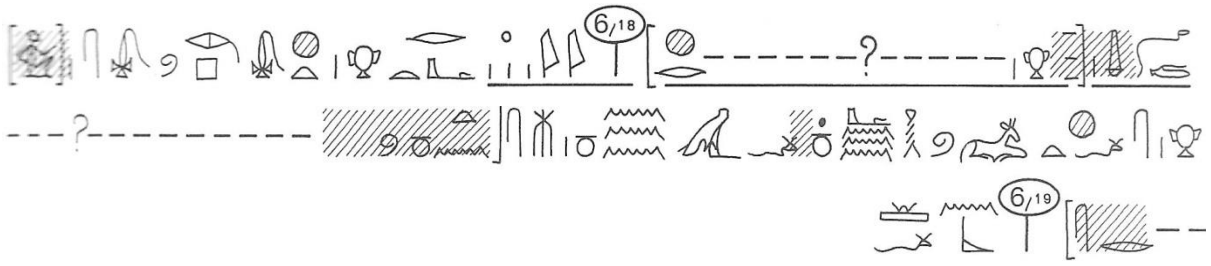
Another (magical spell): […] O this …, great and holy Mistress of the gods, say [… …] who is in his shrine. What is said about her, (when / after) she has repelled the Two Lands, by means of this small cloth on it[1].

7.2.143.1 Note 1

This is an unusual line and it is difficult to understand the intended meaning of it. There must be some significance contained in mythology or magic that is attached to the cloth that would explain its relevance here.

7.2.144 Paragraph 98c

Brooklyn Papyrus, page 6, lines 17 to 19



ḏd mdw [*ḥr…ḫr*]*y rdjt ḥr ḫt. kɜp s*(*j*) *ḥr.s, ḫft jwḥ.f m mw ms*[*tnw……r s*]*nb.f.*

Say magical spells [over … myrrh][1]. (For) placing in the fire. Fumigate the person with it, while (lit. as well as) moistening him with liquid of *mes*[*tenou*[2]……so that] he recovers his health[3].

7.2.144.1 Note 1

The word *ḫry* does not appear in Von Deines & Grapow (1959) as a medicinal ingredient. According to Erman & Grapow (vol. 3, 1929:323), *ḫry* is a kind of myrrh. In previous paragraphs (61b, 64b and 88a) this manuscript uses the name *ʿntyw* for myrrh.

7.2.144.2 Note 2

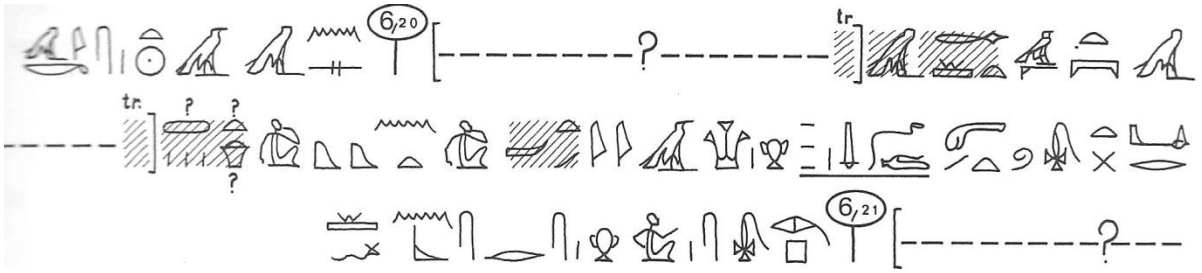
The identity of the ingredient *mw mstnw* is unknown. It appears once previously as *mw nw mstnw* in *Pharaohbuch IV A, C3* (Von Deines & Grapow 1959:229).

7.2.144.3 Note 3

Although part of the phrase is missing, it can be reconstructed with confidence by comparing it to the phrase *r snb.f* in Paragraph 99a.

7.2.145 Paragraph 99a

Brooklyn Papyrus, page 6, lines 19 to 21



kʳrˡ(t): ḫrw bɜg n[*w*] *jm wjɜ n rᶜ ḥr ᶜfn*(*t*) *twy wrt m pt. ᶜɜt m* […] *n.s, m ɜt.s jm.k. dj r sḏt wmt. ḏd mdw ḥr ḥɜyt ḥw nt wnm t.* […] *kɜp s*(*j*) *ḥr.s r snb.f.*

Another (magical spell): a weary (and) weak voice[1] (sounds) in the barque of Ra on account of that headdress[2] of the Great Goddess (Nut) in her guise of the sky. A great thing in […] for her, in her moment with / in you. Place into a dense flame. Say these magic words over the protector of the sustenance of the one who eats bread. […] Fumigate the person with it for him to recover his health.

7.2.145.1 Note 1

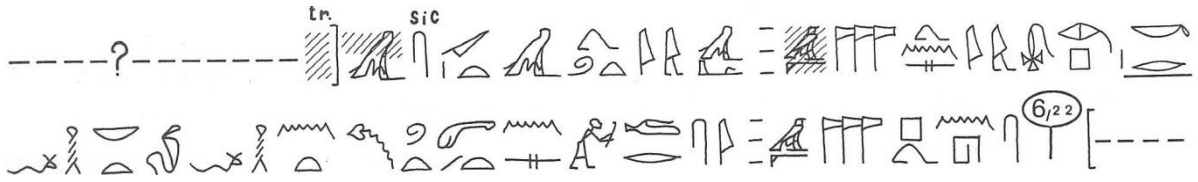
The translation given by Sauneron (1989:131) reads a little differently: *un cri d'appel* (a cry for help). As Sauneron (1989:132) points out, on the advice of Serqet, Isis gives out a great cry to the heavens, an appeal for help when Horus is bitten or stung. Her cry alerts the sun god in his barque and Thoth is sent to heal Horus (see 7.2.102.12, 7.2.138.2 and 8.4.2.2). It is not certain, however, that this myth is what is being alluded to in this paragraph.

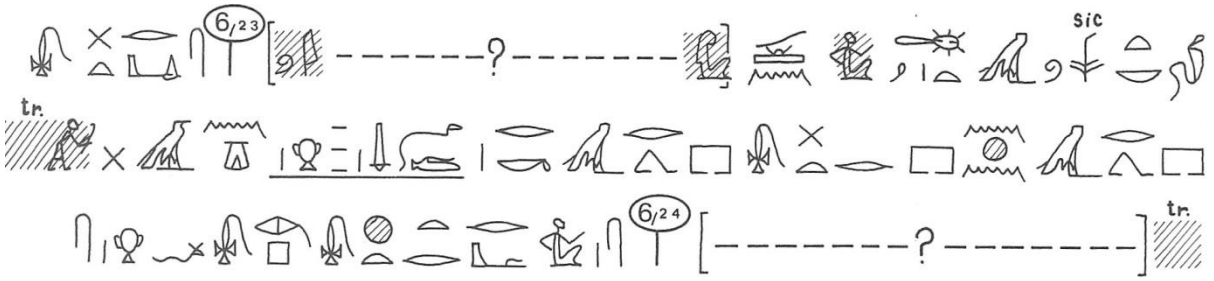
7.2.145.2 Note 2

The 'headdress in the sky' may be an allusion to something from mythology but we do not know what the particular myth is.

7.2.146 Paragraph 99b

Brooklyn Papyrus, page 6, lines 21 to 24





kʳrʾ(t): kɜp jj n.s ntrw, m-ˁ jj.tw m dmt.ʳsʾ m […] *snhp ntrw, js dr.n.s mtwt nt ḫf(ɜw) nbt ḫf(ɜt) nb ʳswʾ m ḫt s n* [*st… jw*].*s rdjt ḫt pr m nḫn r ḫt pr m r.k. ḏd mdw ḥr ng* […]*s(j). rdjt ḫt kɜp.f ḥr.s.*

Another (magical spell): burning of the incense which brings the gods to it, at the same time (lit. 'together with') comes in his[1] bite wound in? […] (And it) sets the gods in motion, and drives out the venom of every male and every female snake from the body of X[2], son of [Y……] she places the flame which comes out of Nekhen (Hierakonpolis) against the flame which comes out of your mouth. Pronounce (these words) over broken / torn up […] a person. (For) placing in the fire and fumigating him with it.

7.2.146.1 Note 1

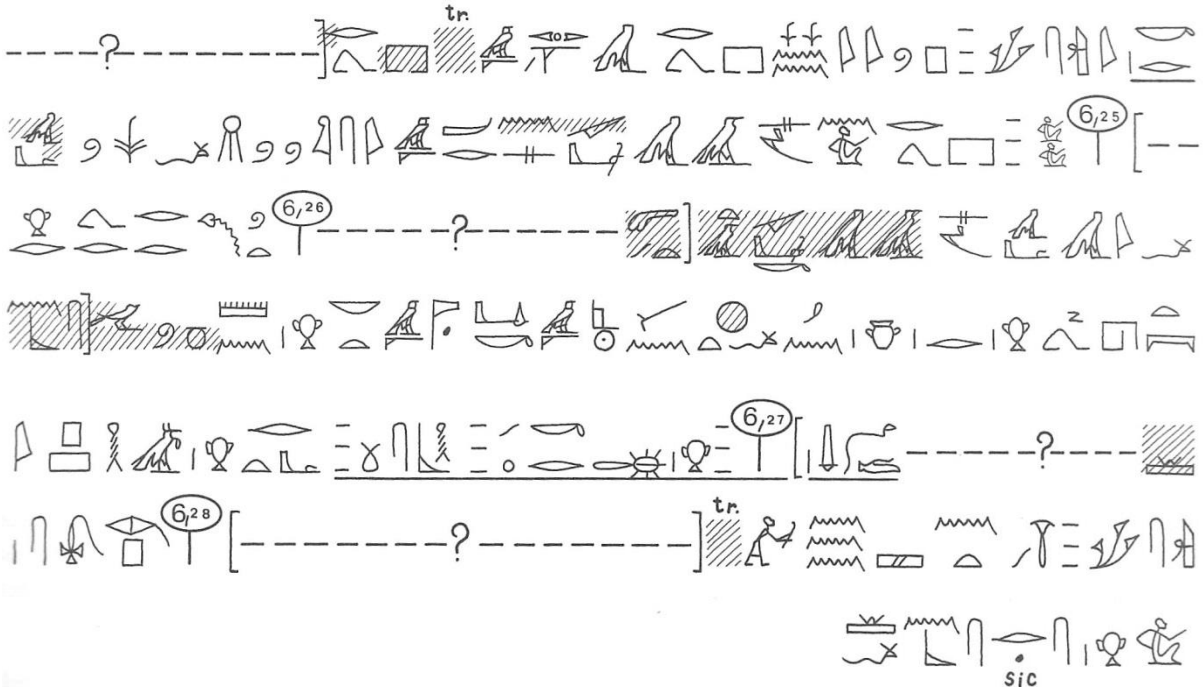
The phrase *dmt.s* should read *dmt.f.* The suffix pronoun should be in the masculine and not the feminine.

7.2.146.2 Note 2

The phrase *sw m ḫt s* (from the body of X) is missing a subject and a verb. This is pointed out by Sauneron (1989:132). The pronoun *sw* is dependent and therefore needs a subject and verb. If the word *sw* was not in the text the sentence would make sense, as *m ḫt s* would simply be a continuation of *snhp ntrw, dr.n.s mtwt nt ḫf(ɜw) nbt ḫf(ɜt) nbt* (sets the gods in motion, and drives out the venom of every male and every female snake). The inclusion of the word *sw* in the text is probably a simple error made by the scribe.

7.2.147 Paragraph 99c

Brooklyn Papyrus, page 6, lines 24 to 28



*k*ˢ*r*ˡ(*t*)*: jsw pwy nn pr m mnw, … pr* […]*rḥwj, pr n.j. smɜ n.s ḥr. js šw.f. sw m ˁ.f, jm m ˁ. smɜ.k tɜ mt*[*wt …*]*. rr* (*pḫr*) *r ḥrt. hɜ ḥr r jb n ḫftj n wsjr*! *dj.k ntr nb ḥr mnw* [*snb … ḏd mdw*] *ḥr ḫkr ḥbs, rdjt ḥr nḥp jsw wḏ*(*w*)*. ntš* […]*. kɜp.s*(*j*) *ḥr.s n snb.f.*

Another (magical spell); O these reeds which come from Min[1], go out […] Two Companions[2], go out for me! Horus, make (the venom) ineffective for him. It is dried out. It is there in his hand. You will destroy this ven[om …]?[3]. Turn around,[4] (come) from the sky, and come down upon the heart of the enemy of Osiris! May you cause every god who is suffering [to heal … Say these magical spells] over decorative items[5] and cloth. (For) placing on a potter's wheel[6] (with) green reeds. Sprinkle (with water) […]. Fumigate the person with it until he recovers his health.

7.2.147.1 Note 1

Reeds and rushes were used medicinally in preparations to be ingested and in ointments (Von Deines & Grapow 1959:61), as in the treatment in Paragraph 71a. In this Paragraph it is used for fumigation. The significance of the reeds in this spell may be related to a late myth that tells of the creation of the temple (see David 1980:68–69)[235]. However, one cannot be certain what the exact importance is of the reeds in this paragraph.

[235] The myth tells of a myth which is preserved in Graeco-Roman Period texts from the temples at Edfu and Denderah, called the *Building Texts*. The texts tell how there was no life or pantheon deities in the beginning of

The mention of the god Min in this paragraph is the first reference to him in this Papyrus. Min is one of the oldest gods with an iconography traceable to the Predynastic Period (Romanosky 2003:218), and he was a god of agricultural fertility (Pinch 2002:164) and male sexual potency (Romanosky 2003:218). An ithyphallic deity, Min was often represented with his right arm raised in a smiting gesture with a flail above his right hand. According to Pinch (2002:164), this aggressive body language suggests that Min could have been considered as an apotropaic deity who drove away evil.

7.2.147.2 Note 2

The two signs  following the missing text might indicate that the word *rḥwj* (the Two Companions) precedes *pr n.j*. Alternatively, it may be a spelling error for the word *rḥw* (companions).

7.2.147.3 Note 3

It is difficult to determine the nature of the word  or how it fits in. Its determinative prevents it from being the impersonal pronoun 'one'. It is probable that the first part of the word has been lost in the lacuna.

7.2.147.4 Note 4

The word *pḫr* with its unusual alternative spelling of  appeared previously in Paragraph 79b – refer to 7.2.102.17, note 17.

7.2.147.5 Note 5

The word *ḫkr* is given a meaning of '*schmuck*' (jewellery, decoration) by Hannig (2006:696) and Erman & Grapow (vol. 3, 1929:401). It appears to be related to jewellery or decoration of crowns, weaponry, clothing and amulets. The phrase 'decorative items' seems to cover the word *ḫkr* well, as it is not clear exactly what must be placed on the potter's wheel with the reeds.

---

time, until a mud island rises up from the waters and a reed washes up on its shore. The reed is saved by some minor gods that have appeared by now, and it is placed into the ground. The very first god, a falcon, arrives and alights upon the reed and this action of the falcon results in the area in the immediate vicinity of the reed becoming a sacred place. As the waters recede, so more reeds are added to enlarge the reed shelter, and eventually this shelter becomes a large temple (David 1980:68–69).

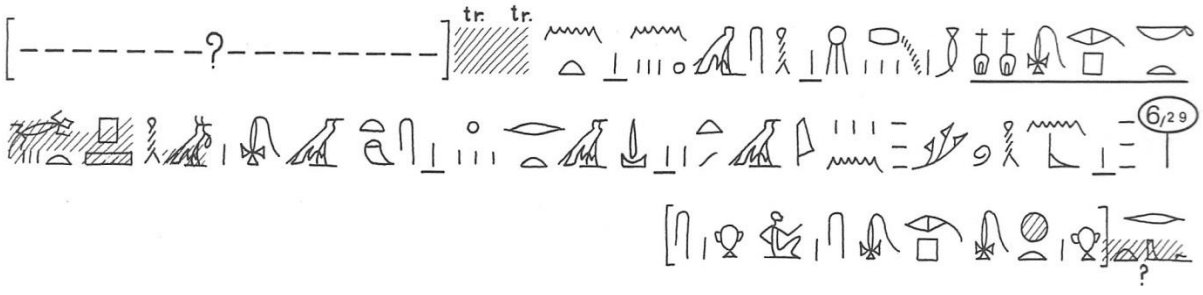
The causative verb *sḫkr* means ‘to decorate’ or ‘to adorn’ (Faulkner 1986:244). Sauneron (1989:133) suggests that the word may possibly have been intended to be *ḫnk,* meaning ‘fabric’. This would mean that both *ḥbs* and *ḫnk* refer to fabric, but presumably they would be two different types of fabric, and most likely ones that would burn easily. One can only imagine the smoke produced by this fumigation. It was probably thought that it would drive the venom out of the patient’s body and chase away the sickness.

7.2.147.6 Note 6

The reason for using a potter’s wheel is unclear and one can only speculate. The potter’s wheel is linked to the ram-headed god Khnum because it is on a potter’s wheel that Khnum was believed to have crafted everything (Pinch 2002:63). The use of the potter’s wheel in this treatment may simply be that it provided a convenient stone surface on which to burn the products, and one that could withstand heat. Sauneron (1989:133) says that in the *Berlin Medical Papyrus* (75, 46 and 60) the products were placed on seven potter’s wheels. In Paragraph 100 of our Papyrus the treatment calls for numerous potter’s wheels on which to place the products.

7.2.148 Paragraph 100

Brooklyn Papyrus, page 6, lines 28 to 29



kt kɜp nfr nfr: bnr šw: 1, *ḥsmn:* 1, *nt* […], **[…]**: 1, *nbḥ n jɜt:*1, *ḏɜrt:* 1, *stɜ:* 1, *nḥp ʿšɜt. rdjt* [*ḥr ḫt kɜp s*(*j*) *ḥr.*]

Another very good fumigation: dried dates[1]: 1, natron[2]: 1,? […], […]: 1, *nebeh* plant[3] of the mound:1, carob pod[4]: 1, lamp-wick: 1, numerous potter’s wheels. (For) placing [on the fire (and) fumigating the person with it.][5]

7.2.148.1 Note 1

See 7.2.115.3 for the note on dates (*bnr*) for Paragraph 85c.

7.2.148.2 Note 2

See 7.2.24.2 for the note on natron (*ḥsmn*) for Paragraph 46g.

7.2.148.3 Note 3

The *nebeh* plant has yet to be identified. According to Erman & Grapow (vol. 2, 1928:245), the *nbḥ* plant is *eine Pflanze (in Beziehung zu Osiris)* (a plant [associated with Osiris]).

This link between the *nebeh* plant and Osiris can be traced through Naref, part of the Herekleopolitan area of the 20th nome of Upper-Egypt. Naref, says Díaz-Iglesias Llanos (2017:67) was an important centre of the god Osiris, and was often mentioned in funerary and cultic sources over a very long period of time – from the First Intermediate Period right up until Graeco-Roman times. Osiris Naref was a local form of the god Osiris.

Díaz-Iglesias Llanos (2017:68) explains that an inscription in the temple of Edfu says that Naref was a sacred mound. The sacred mounds were located in places such as temple precincts. According to Buhl (1947:87), the mound (*jꜣt*) was to be found in the vicinity of the necropolis and was on elevated ground and had to be placed away from cultivated land. It was believed that the mound (*jꜣt*) was a place where Osiris was buried (Díaz-Iglesias Llanos 2017:67) under the shade of a tree, the growth of which represented the rebirth of Osiris.

The same inscription in the temple of Edfu (Díaz-Iglesias Llanos 2017:68) says that the *šnḏt* (the Nile acacia, *Vachellia nilotica / Acacia nilotica*) was the sacred tree of the mound, which was associated with the protection of the king. However, says Díaz-Iglesias Llanos (2017:69), the Nile acacia was not alone on the mound protecting the burial place of Osiris. According to the *Fayum Book*, *nebeh* or *nebeheh* plants were also found on the Naref mound, as well as on other mounds, such as that at Busiris, which were associated with the burial of Osiris. Furthermore, the *Salt Papyrus* (825) tells us that 'the *nebeh* plant comes from Osiris in Nedit[236]'. According to Baum (1988:273), during the festival of Osiris in the month of Khoiak, two statuettes – of the gods Sokar and Khnety Imentit, – are the object of funerary

[236] Nedit is the place where Osiris was slain by his brother (Díaz-Iglesias Llanos 2017:69).

rites. The Statuette of Khenty Imentit is enclosed in a coffin of sycamore wood and interred on the third day of the month in the mound of the *nebeh*-plants, under the *jšd* (*Balanites aegyptiaca*)[237] trees.

In the *Coffin Texts* (VI, 322) Osiris says 'I am the *weneb* flower of Naref, and the *nebeheh* plant in the Western Horizon' (Díaz-Iglesias Llanos 2017:69), thus cementing his close relationship with the *nebeh* plant. Unfortunately, however, the identity of the *nebeh* plant remains unknown for now.

7.2.148.4 Note 4

See 7.2.62.6 for the note on carob pods (*ḏꜣrt*) for Paragraph 58.

7.2.148.5 Note 5

Sauneron has restored this line by analogy with Paragraph 99b.

[237] According to Baum (1988:310) the *jšd* tree can be identified as *Balanites aegyptiaca*.

CHAPTER EIGHT

MEDICINAL INGREDIENTS AND TREATMENT METHODS

8.1. THE *BROOKLYN PAPYRUS* PHARMACOPEIA

Chapter Eight draws on the information about the treatment of snakebite in ancient Egypt that has been revealed in the course of the translation of the second part of the *Brooklyn Papyrus.* This information is assembled in this chapter in a form that enables a discussion of the ancient Egyptian pharmacopoeia, which includes its ingredients of botanical, animal and mineral origins as well as its prescriptions, which involve ingredient preparation, dosage and application. This assembling of information is achieved by inputting the data into tables that will facilitate consideration of the treatment ingredients and methods used in ancient Egypt and help to answer questions about what ingredients were used, how they were used and how treatments were made.

The treatments in the *Brooklyn Papyrus* contain a large variety of ingredients. This, according to El Saeed (2016:117), is characteristic of the ancient Egyptian pharmacopeia.

The snakebite treatments in the *Brooklyn Papyrus* are given in the form of recipes, which list the ingredients to be used in each treatment, and often the manner of preparation of these ingredients and the method of patient treatment. Some of the recipes give the quantity of each ingredient to be used, while others do not. Some give the treatment for the bites of specific snakes, while others are general, and some of the treatments give the specific condition/s associated with the snakebite that they are intended to treat. The ancient Egyptian word for 'treatment' is *pḫrt*. The usual spelling of this word is  but the *Brooklyn Papyrus* scribe consistently uses a spelling of  (see 7.2.2.1).

The treatment ingredients can clearly be placed into the following groups: botanical ingredients, animal products, and mineral ingredients. It is useful to provide a fourth category – that of carrier liquids. The ingredients very often need to be mixed in a liquid solution of some sort to allow for easy ingestion, or to bind dry ingredients for a poultice. Sometimes

these carrier liquids are used for perceived medicinal benefits of their own, and at other times they serve as a palatable or useful medium for ingesting or binding the ingredients together.

Many of the ingredients in the *Brooklyn Papyrus* treatments are commonly used for medicinal purposes and will be found repeatedly in other medical texts as well, such as the *Ebers, Hearst* and *Edwin Smith* medical papyri. Several ingredients listed in the *Brooklyn Papyrus* are rarely used in other medical papyri, if at all, and then only for one or two treatments. Their prescription here in the *Brooklyn Papyrus* is, therefore, important.

The lists of ingredients in each table given in this chapter is organised according to the ancient Egyptian alphabet and shows the hieroglyphs used in the *Brooklyn Papyrus*. Occasionally, some of these spellings and their alternatives differ slightly to those given in the dictionaries and, therefore, provide alternative spellings that are not common.

8.1.1 Botanical ingredients

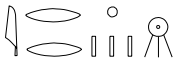
Botanical ingredients form the largest component of the *Brooklyn Papyrus* treatment recipes. These botanical ingredients take many forms, from bark, roots, leaves and flowers, to oils, saps and resins. Occasionally the treatment does not specify what part of the plant is to be used. The most frequently used botanical ingredient is the onion (*Allium cepa*). This may be for magical reasons as much as for medicinal purposes. (Refer to Paragraph 41 where the onion is aligned with the tooth of the god and used as a tool to fight venom). The botanical ingredients could be used fresh or in dried form, and sometimes powdered.

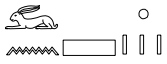
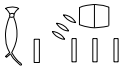
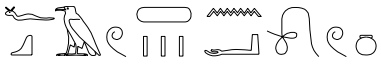
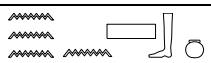
Unfortunately, some of the botanical species remain unknown to us and we only have the ancient Egyptian name. The identity of other species has been debated by scholars but the exact identity is still uncertain. For this reason, some of the plants listed below have more than one possible candidate for the ancient Egyptian name. For example:  may be *Lactuca virosa* (wild lettuce) or *Melilotus officinalis* (sweet clover); and *jnnk* may be *Erigeron aegyptiacus* (conyza), *Thymus vulgaris* (thyme) or *Mentha aquatica* (aquatic mint). It is important to acknowledge that although the identifications of some of the plant species listed in Table 8 below have a reasonable degree of certainty, their exact identification in Egyptian medical papyri can never be one hundred per cent for others. These identifications follow the respected works of Loret (1892), Dawson (1934, 1935), Lefebvre (in Sauneron 1989), Von

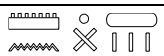
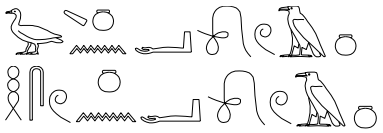
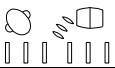
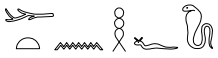
Deines & Grapow (1959), Aufrère (1983, 1986, 1987), Darby *et al* (1977), and Manniche (1989).

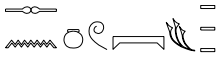
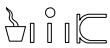
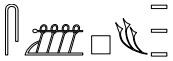
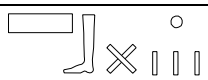
Where the part of the plant used has been specified in the treatment, it has been noted in the table below.

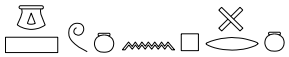
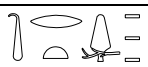
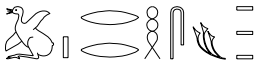
Table 8: The botanical ingredients of the *Brooklyn Papyrus* treatments

Egyptian name	Hieroglyphics	Latin / English name	Part of plant used	Paragraph number
ꜣᶜᶜm dšrt		unknown	not specified	77a
ꜣḥm		unknown	not specified	96a
jꜣrrt		*Vitis vinifera* / common grape vine	grapes	71a
jꜣrrt šw		*Vitis vinifera* / common grape vine	dried grape stalks	61a
jbw		unknown	seeds	92, 95b
jbs		unknown	leaves unspecified	47f 87a
jmꜣ		*Maerua crassifolia* / meru tree	unspecified powdered form leaves	46a 64b, 72d 87a
jnjw		unknown	fruit or seeds unspecified	46e 54a
jnnk		*Erigeron aegyptiacus* / conyza; *Thymus vulgaris* / thyme; *Mentha acquatica* / water mint	unspecified	78b
jrtj		*Seratonia siliqua* / carob tree	pod	71a
jsw		reeds		71a
jt		*Hordeum vulgare* / barley	 flour	45d, 86 76, 94
ᶜᶜm		Unknown		51e

Egyptian name	Hieroglyphics	Latin / English name	Part of plant used	Paragraph number
ʿfɜ		*Lactuca virosa* / wild lettuce; (or *Melilotus officinalis* / sweet clover)		47d, 86, 93b
ʿmˁˁ		various grains	grains	45e
ʿmˁˁ n jt		*Hordeum vulgare* / barley	grains	45d
ʿnḫ-jmj		*Vitex agnus castus* / chaste tree	berries	47d, 54h
ʿntyw šw		*Commiphora myrrha* / myrrh	resin (dried)	61b, 64b, 88a
ʿqw js		old loaves		60
wnš		*Vitis vinifera* / common grape vine	raisins	60, 66a, 96b
bɜq	 (alternative) 	*Moringa oleifera*, *Moringa peregrina* moringa, drumstick tree, benoil tree, benzoil tree	seeds to obtain oil	43c, 44c, 46d, 54b, 56b, 95b
bɜq n nɜwj		*Moringa oleifera*, *Moringa peregrina* moringa, drumstick tree, benoil tree, benzoil tree	seeds to obtain oil (fresh)	88a
bnr	  (alternative)	*Phoenix dactilifera* / dates	 dried	85a 100
btj (*bdt*)		*Triticum turgidum*, *Triticum dicoccum* / emmer wheat	unspecified	45d
bddw-kɜ		*Citrullus vulgaris*, *Citrullus lanatus* / watermelon, African melon	unspecified juice	46k, 50b, 71a, 77c, 95c, 51c
pwrḫjt (*pḫt?*) *ʿɜ*		unknown	unspecified	61a
fqɜw		cake		59
fqɜw n ʿwɜyt		cakes of fermentation		45e
mjmj		*Triticum turgidum*, *Triticum dicoccum* / emmer wheat	unspecified	71a, 83
mw n šbt		*Hordeum vulgare* / barley	liquid of barley mash	46i, 48b

Egyptian name	Hieroglyphics	Latin / English name	Part of plant used	Paragraph number
mn qmyt		unknown (*men* resin)	resin /gum	46a, 46e, 51c
mnt		unknown (*menet* resin)	resin	88a
mḥy		*Linum usitatissimum* / flax, linseed	unspecified	46d
nbs		*Ziziphus spina Christi* / jujube, Christ thorn	leaves	87a
nbḥ n jɜt		unknown	unspecified	100
nḥḥ		*Sesamum indicum* / sesame	seeds to obtain oil	47g, 50b, 51a, 52, 53, 62c, 91a
rdnw		*Papaver somniferum* / opium poppy	laudanum (tincture of opium)	61b
ḥsɜ		mucilage, fermented brew		45c, 45d, 56a, 73
ḥsɜ ʿwɜyt	 (variant spelling)	mucilage of fermentation		50a, 51d, 72b, 75b, 89
ḥsɜ ṯɜy		male plant mucilage		55
ḥsbw jt		roughly crushed (grains) of barley		60, 85d
ḥḏw		*Allium cepa* / onion	unspecified	42a, 42b, 45a, 45c, 46a, 46b, 46c, 46d, 46h, 46k,47a, 47g, 48b, 48c, 50a, 51c, 54f, 57, 59, 65b, 68, 73, 75a, 75b, 77b, 77c, 82a 95c
ḫɜsjt		*Bryonia dioica* / bryony	unspecified	58
ḫt n ḥfɜw		*unknown* / ‘wood-of-the-snake’	roots and twigs unspecified	43c 46c
ḥntt snṯr		*Pistacia sp.* / terebinth, turpentine tree		85b

Egyptian name	Hieroglyphics	Latin / English name	Part of plant used	Paragraph number
ḫṯn		*Allium sativum* / garlic	unspecified	75b
sʿm		*Artemisia herba alba* / white wormwood	unspecified	48c, 49b, 51e, 73, 75b
sft		*Abies cilicica* / Cilician fir oil		62c, 78a
sm ?		unknown	unspecified	46g
smw rdj.f m hɜwj hbnt		unknown ‘plant which grows in the vicinity of Hibis’	unspecified	66a
snw pt		*Nymphaea caerulea* / blue lotus? *Sinapis sp.* / wild mustard?	unspecified	67
snṯr		*Pistacia sp.* / terebinth, turpentine tree	unspecified	47g, 50b, 60, 61a
snṯr wɜḏ		*Pistacia sp.* resin / terebinth, turpentine tree	sap (fresh)	61b, 62c, 64a, 66b, 96a
snṯr pḥɜ		*Pistacia sp.* resin / terebinth, turpentine tree	sap (ground)	51b, 81
snṯr šw		*Pistacia sp.* resin / terebinth, turpentine tree	sap (dried)	60, 87b
sšpt		*Cucumis melo* / chate melon		67
sd pnw		*Althaea officinalis* / marshmallow	unspecified root	46a, 46f, 46j, 47c, 47d, 54d, 54f, 51d, 54g
šɜms		*Anacyclus pyrethrum* / pellitory?	unspecified	54b
šɜšɜ		*Valeriana officinalis* / valerian	powder unspecified	59 71a, 75a
šbt		*Cucumis melo* / chate melon	unspecified	55
šnj ɜᶜᶜnj		*Unknown* / ‘hair-of-the-baboon’	unspecified	43a
šnḏt		*Vachellia nilotica* (*Acacia nilotica*) / Nile acacia, Egyptian thorn tree	leaves	46h, 87a, 96b

Egyptian name	Hieroglyphics	Latin / English name	Part of plant used	Paragraph number
šɜkr		amber?		68, 90c
qbw		unknown	unspecified seeds or fruit	46a, 54e, 70, 75b 46j, 54d
qmyt		various plants	resin / gum	71a, 87b
qrqr		unidentified plant parts (galls?)	grows on the sycamore	66a
ksby		*Vachellia tortilis* / (*Acacia tortilis*) umbrella thorn acacia	wood	46g
gɜš pɜ-wr		lees of vinegar		48c, 81
t jjw jt		*Hordeum vulgare* / barley	old bread grain	46a
twn		unknown	unspecified	54c, 59, 82c
twt ḥr		unknown ‘Image of Horus’ plant	unspecified	65a
twt stš		Unknown ‘Image of Seth’ plant	unspecified	65b
tpnn		*Cuminum cyminum* / cumin	unspecified	43a, 59, 75a
trt		*Salix safsaf* / Egyptian willow	leaves charcoal twigs unspecified heart (core)	46b 46e 63a 65b 75b
tḥwy		*Pisum sativum* / pea	unspecified seeds	45b, 50a, 56a, 45d, 45e, 92
ṯɜmṯɜm		unknown	unspecified	75b
ṯɜrrḥs		unknown	unspecified	46a
ṯɜtj		unknown	unspecified	75b
dɜbw		*Ficus carica* / fig	fruit	60, 61b
dgm		*Ricinus communis* / castor oil plant	leaves seeds unspecified	44b, 72d 45d 62a

Egyptian name	Hieroglyphics	Latin / English name	Part of plant used	Paragraph number
ḏ3js		*Peganum harmala* / wild rue	unspecified seeds	40, 86 76, 94
ḏ3ˁ		*Lathyrus sativus* / vetch	unspecified	65c
ḏˁrt		*Seratonia siliqua* / carob tree	pod (powdered) pod	58, 63b, 64b 63a, 76, 86, 94, 100

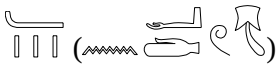
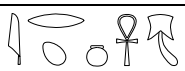
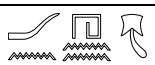
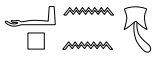
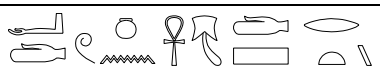
We do not know how the plants were gathered for use in the *Brooklyn Papyrus* treatments and neither do we know if the healer had to search for them or if some of them were grown in gardens designed for the cultivation of medicinal plants.

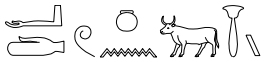
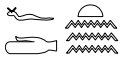
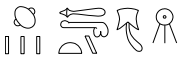
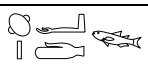
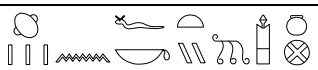
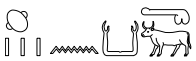
8.1.2 Animal product ingredients

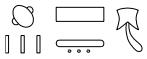
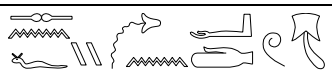
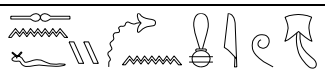
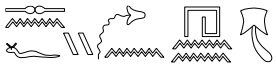
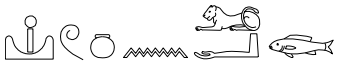
Forshaw (2016:135) asks whether animal products were selected for use in medical treatments for their perceived magical properties or chosen because the animal had some desirable characteristic. Nunn (2002:97) adds that it could then only be by chance that the treatment had any therapeutic value.

A variety of animal products were used in the *Brooklyn Papyrus* treatments of snakebite (see Table 9 below).

Table 9: Animal products used in the *Brooklyn Papyrus* treatments

Egyptian name	Hieroglyphics	English name	Product used	Paragraph number
jbḥw (*n ˁdw*)		grey mullet	teeth	85d
jrṯt ˁnḫt		goat	milk	69
ˁ3g(t) nt(j) ˁ3t		donkey	hoof	44c
ˁb n hnn		deer / gazelle	horn	85d
3pnn		newt	whole body	85a
ˁḏ		uncertain (possibly cow)	fat	76
ˁḏ n ˁnḫt dšrt		goat (red)	fat	58

Egyptian name	Hieroglyphics	English name	Product used	Paragraph number
ꜥḏ n ḫmt		cow	fat	47e, 64a, 94
ꜥḏ n ḫmt wꜣḏ		cow	fat (fresh)	62c
ꜥḏ n jꜣt kꜣ(?)		bull (?)	fat from the back	72c
wfꜣ n ḫmt		cow	lung	72b
wdd n ꜥnḫt		goat	gall	46e, 46g
wdd n ꜥnḫt dšrt		goat (red)	gall	46a
wdd n ḫmt dšrt		cow (red)	gall	47c
bjt		honey		43a, 46h, 47f, 49a, 54c, 54h, 59, 60, 63a, 63b, 66b, 69, 70, 72b, 74b, 75a, 75b, 76, 77c, 82c, 84, 93b, 94
fdt			sweat	95a
mjw		cat	blood	90c
mjst n hnn		deer / gazelle	liver	47b, 48a
mnḥw		beeswax		47g, 51b, 62b, 62c
mrḥt		goose	fat	66b
mrḥt dbw		hippopotamus	fat	78a
ns n ꜥdw		grey mullet	tongue	85d
rd n nrt		vulture	foot	95a
ḥꜣty n hnn		deer / gazelle	heart	54d
ḥs ꜥꜣt		donkey	excrement, dried	87b
ḥs ꜥff		fly excrement	excrement	79a, 88b
ḥs ꜥḏw		grey mullet	excrement	54d
ḥs n fktj jwnw		shorn priest of Heliopolis	excrement	54f
ḥs n kꜣ		bull	excrement	46h
ḥs ḫnt		pelican	excrement	66a

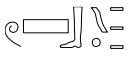
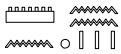
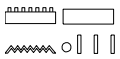
Egyptian name	Hieroglyphics	English name	Product used	Paragraph number
ḥs n ḫmt kmt		cow (black)	excrement	54e
ḥs n ḫmt dšrt		cow (red)	excrement	47c, 54d
ḥs štw		tortoise	excrement	89
swḥt n njw		ostrich	egg	88a
smj		curds		62b, 62c, 72b
smj wꜣḏ		curds (fresh)		47e
snf ꜥnḫt nḏst		young goat	blood	70
snf n ꜥrꜥt		cobra	blood	81, 90c
snf n ꜥdw		grey mullet	blood	90c
snf n mjw		cat	blood	90c
snf n hnn		deer / gazelle	blood	91c
snf n ḫmt dšrt		cow (red)	blood	91b
snf n dpy jgrt		*Laudakia stellio* / starred agama?	blood	90c
snf n ḏryt		kite	blood	90c
qꜣdy		*Agama flavimaculata* / blue desert lizard?	not specified	40
dḥr n štw		tortoise	hide	78a
ḏw (*?*) *n šnꜥ*		*chena* fish	brine (?)	51b

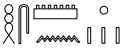
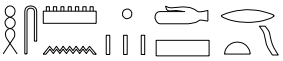
The most commonly used animal ingredient is honey, followed by blood, excrement, gall and fat. Products from cattle and goats are frequently used. Of all the fish species, the grey mullet is a popular source of ingredients (see Table 9 above).

8.1.3 Mineral ingredients

A variety of mineral ingredients were included in the snakebite treatments in the *Brooklyn Papyrus*, as can be seen in Table 10 below.

Table 10: Mineral ingredients used in the *Brooklyn Papyrus* treatments

Egyptian name	Hieroglyphics	English name	State of mineral used	Paragraph number
jbnw		alum	crushed unspecified	48c, 49a, 51b, 51c, 61b, 72c
wšbt		*Oushebet* mineral	unspecified	51b, 58, 64b
pꜣqyt n hnw n mꜣw		fragment of a new pot		78a, 87b
mnnn		bitumen / resin	ground in water	67
mnšt		red ochre	unspecified mixed with curds mixed with honey mixed with fly excrement	49a 72b 74b 79a, 88b
rḫtj		Fuller's earth	lees ointment	83 85a
ḥmꜣt		salt	crushed	48c, 72a
ḥmꜣt mḥt		salt of the north (delta)	dissolved in beer dissolved in fermented brew dissolved in sweet beer mixed in moringa oil mixed in sesame oil ground in terebinth ground or mixed with honey mixed with curds on cow lung	45a, 45c, 65a 45d 46b, 59, 73, 75a 46d 51a, 52 61a, 61b, 62b, 66b 66b, 76, 94 72b 72b

Egyptian name	**Hieroglyphics**	**English name**	**State of mineral used**	**Paragraph number**
			mixed with fermented mucilage	75
			mixed with vinegar lees	81
			mixed with rainwater	84
			unspecified	51b, 86
ḥsmn		natron	dissolved in beer or water	46g
			mixed in sesame oil	53
			ground	58
			unspecified	72a
			burned	64b, 100
ḥsmn n(j) sḥt		natron of the oasis		61b
ḥsmn dšrt		red natron	mixed in lees of vinegar	81
ḥmt srft		copper (heated)		64b
ḫ3w nw ḥmt		copper filings	ground in watermelon liquid	51c
s3-wr		hydrous iron sulphate / melanterite?	unspecified	43a, 64b, 92
sjn ṯ3y		male clay	lees of	55, 71b 63b
stj	 (alternative spelling)	yellow ochre	heated (fumigation)	47g
			crushed finely	87b
			unspecified	96b
šᶜy dšrt		sand of the desert		44a
šfšft		mud?		87b
t m prš		loaf of minimum / red earth?		64b

Egyptian name	Hieroglyphics	English name	State of mineral used	Paragraph number
djdj		Nubian red ochre	crushed in terebinth	60

The most commonly used mineral ingredient in the snakebite treatments is salt. In terms of infection control, this may have been the most useful of all the ingredients. Alum and ochre (both red and yellow ochre) are also used fairly often.

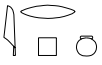
8.1.4 Carrier liquids

Many of the ingredients in the treatment recipes were mixed together in a liquid of some sort. The liquid served two deliberate purposes and one incidental purpose. Firstly, if a treatment had to be swallowed (either because it was to be drunk or used as an emetic) it logically needed to be placed in a suitable liquid, preferably a palatable one. Secondly, if a recipe mixture was to be placed on a bite wound as a poultice the ingredients needed to be bound together with a small but sufficient quantity of liquid. This substance may also act as an adherent.

The incidental usage of carrier liquids is as follows: active principles (chemical compounds in plants which may provide a medicinal benefit) can be released in the carrier liquid. Some active principles are activated in water, others in alcohol and yet others in oil (Nunn 2002:139). The person preparing the treatment was probably not aware that this is how things worked but, through the coincidence of mixing certain plants in certain liquids, the active principle involved in healing (for example) was released and thereby provided a benefit to the patient. Of course, the opposite may also happen and it may be an active principle that causes more harm than good.

Table 11 below shows the liquids that were used in the *Brooklyn Papyrus* treatments as carrier liquids and gives the paragraph numbers in which they appeared.

Table 11: Carrier liquids used in the *Brooklyn Papyrus* treatments

Egyptian name	Hieroglyphics	*Latin* / English name	Carrier liquid	Paragraph number
jrp		*Vitis vinifera* / common grape vine	wine	43c, 46a, 46e, 46f, 46j, 47b, 47c, 47d, 54d, 65c, 68, 78b, 96a

Egyptian name	Hieroglyphics	*Latin* / English name	Carrier liquid	Paragraph number
bꜣq		*Moringa oleifera* / moringa, drumstick tree, benoil tree, benzoil tree	oil	43c, 44c, 46d, 54b
pꜣ-wr		vinegar		56b, 72b
mw		water		40, 42a, 46g, 47a, 48a, 51d, 54a, 54e, 54f, 54g, 67, 71a, 77b, 82a, 93a, 93b
mw ḥwj		rainwater		84
mw qbw		water (fresh)		63a, 72c
nḥḥ		*Sesamum indicum* / sesame	oil	47g, 52, 53
ḥˁs		mucilage		45c, 45d, 73
ḥnqt		beer		42b, 45a,45c, 46a, 46e, 46g, 65a, 65b, 65c, 70, 85c
ḥnqt nḏmt		sweet beer		43a, 46b, 49b, 54h, 57, 59, 72b, 73, 75a, 77a, 93a
snṯr		*Pistacia sp.* / terebinth, turpentine tree	sap	60

It is clear from Table 11 above that some substances are used frequently, such as wine, water, beer and sweet beer, and others are used only once or twice.

8.1.4.1 Wine

The grape vine and its produce were used from early times in ancient Egypt. Grape seeds were found in Predynastic settlements, and the earliest suggestion of wine production comes from the First Dynasty, according to Murray (2000b:577), who also says that the word *jrp* (wine) is known to have existed from at least the Second Dynasty. Wine was not only used in rituals, libations and temple offerings (Darby *et al* 1977:574), but also appeared in decorations on tomb walls where scenes of vines and wine making were intended to ensure a sufficient supply of wine in the next life.

As Manniche (1989:156) points out, wine was used medicinally as a vehicle for other ingredients and that even the dregs were often used in treatments. Medicinal remedies which

used wine as a carrier included a laxative, cough remedy, pain relief and an anthelminthic (antiparasitic). Wine could also be used as an antiseptic (Murray 2000b:581).

8.1.4.2 Beer

Beer was a normal part of the ancient Egyptian diet and, therefore, easy to obtain for medicinal purposes. In addition, says Metcalfe (2016:162–163), it contained protein, soluble fibres and vitamins, and was, therefore, very nutritious. One can imagine that a nutritious beverage would be of benefit to a convalescing patient.

Metcalfe (2016:162) points out two other benefits of beer. Firstly, beer may have had a sedative or euphoric effect on the patient (it must be noted that alcohol is not advised in today's snakebite treatment). Its alcohol content, according to Estes (2004:140) was between 6.2 and 8.1 per cent. Secondly, ethanol, which is produced during the fermentation process, is toxic to numerous organisms such as fungi and bacteria. This would make beer a better choice of fluid to use than water from the Nile, which contained bacteria and schistosome parasites (parasitic flatworms known as blood flukes which cause diseases such as bilharzia). Use of this river water on wounds would not have helped to reduce infection. However, Estes (2004:140) says that beer was never used for superficial wound treatments. This is also the case in the *Brooklyn Papyrus* treatments; beer is never used in any of the wound treatments but rather served as a carrier liquid for the other ingredients used in treatments to be ingested or in emetics. Estes (2004:140) says that its primary medicinal use by the Egyptians was for disorders of the gut, including diarrhoea, and as an anthelminthic, as well us for urinary tract disorders.

It is not entirely clear what 'sweet beer' is (see Table 11 above). Two possibilities raised by Metcalfe (2016:159) are that sweet beer may be beer that has had a sweetening agent such as honey added to it, or the fermentation process may have been halted before all of the sugars could be converted into alcohol. Sweet beer is used in only one wound treatment in the *Brooklyn Papyrus*. Its primary use was as a carrier liquid for other ingredients for emetic and ingestible treatments.

8.1.5 Ingredients of unknown type

Three ingredients are unidentified and could not be placed into any category (see Table 12 below). It is not certain if they are of plant, animal or mineral origin. The *ꜣby* liquid may be

of plant origin, perhaps oil of some sort. The *pds* product may be of mineral origin as suggested by its determinative.

Table 12: Uncategorised ingredients used in the *Brooklyn Papyrus* treatments

Egyptian name	Hieroglyphics	Product identity	Paragraph number
ȝby		*Aby* liquid	62c
wt tn wȝt		unknown	82b
pds		unknown	92

Unfortunately, one cannot be certain of the nature of any of these ingredients listed in Table 12 above.

8.2 DRUG DOSAGES

In order to make the *Brooklyn Papyrus* treatment prescriptions more meaningful, it is important to understand the different ways of indicating medicinal product dosages and to be able to convert them into a dosage quantity that we are familiar with, such as litres and millilitres.

A number of treatment recipes in the *Brooklyn Papyrus* indicate the quantity of ingredient to be used, but in some recipes no quantities at all are expressed (for example see Paragraph 43c, 7.2.9). The Papyrus makes use of four different methods of indicating quantity. Firstly, quantities can be expressed as a fraction using the hieroglyph  (for an example see Paragraph 43a, 7.2.7). Secondly, the quantities can be given in fractions expressed by a part of the eye of Horus (for an example see the quantity specified for the beer or mucilage in Paragraph 45c, 7.2.15). Thirdly, the quantity can be given in *hin* (for an example see Paragraph 51e, 7.2.47), and fourthly, quantities can be expressed as a single unit or multiple thereof (for an example see Paragraph 54d, 7.2.16).

Weight was rarely used in quantifying ingredients in medical treatments (Nunn 2002:140). It appears that measurement of ingredients was done according to volume. The basic volume

measurement was the *heqat* (*ḥqꜣt*) which equates to approximately 4.5 ℓ. The *heqat* was the basic grain measure, which Leake (1952:23) calls a jar. Nunn (2002:141) explains that there were multiples of the *heqat*, being the double *heqat* (9 ℓ approximately) and the quadruple *heqat* (18 ℓ approximately). These quantities were too large for medicinal preparations. Quantities for medicinal preparations were, therefore, usually expressed as a fraction of the *heqat*. The *henu (ḥnw*) was 1/10 *heqat* (450 mℓ) and the *ro* was 1/320 *heqat* (14 mℓ, or 1 tablespoon). The hieroglyphic sign for the mouth and the *ro* (*r*) is  . The *ro* could, therefore, be considered as a mouthful (Leake 1952:20). The *henu* was the jug measure (Leake 1952:23). Both Nunn (2002:140–143) and Leake (1952:19–27) give comprehensive explanations on quantities.

The *ro* was the smallest measure at 14 mℓ. Therefore, 320 *ro* equalled 1 *heqat*. We can express this as follows: 320 *ro* × 14 mℓ = 4480 mℓ = 4.480 ℓ = 1 *heqat*. From this information we can calculate the following as laid out in Table 13 below:

Table 13: Medicinal quantities based on the *heqat*

Heqat	***Ro***	**Calculation**	**Metric volume**
$^{1}/_{64}$ *heqat*	5 *ro*	5 × 14 mℓ	70 mℓ
$^{1}/_{32}$ *heqat*	10 *ro*	10 × 14 mℓ	140 mℓ
$^{1}/_{16}$ *heqat*	20 *ro*	20 × 14 mℓ	280 mℓ
$^{1}/_{8}$ *heqat*	40 *ro*	40 × 14 mℓ	560 mℓ
$^{1}/_{4}$ *heqat*	80 *ro*	80 × 14 mℓ	1.120 ℓ
$^{1}/_{2}$ *heqat*	160 *ro*	160 × 14 mℓ	2.400 ℓ
1 h*eqat*	320 *ro*	320 × 14 mℓ	4.480 ℓ

As an example of quantities given as a fraction, let us look at Paragraph 75a of the *Brooklyn Papyrus*, a remedy to treat one bitten by the horned viper. The ingredients and their quantities to be used in the recipe are listed as follows:

Cumin: $^{1}/_{64}$
Valerian: $^{1}/_{16}$
Seeds of the …: $^{1}/_{32}$
Onion: $^{1}/_{4}$
Salt of the north: $^{1}/_{64}$

Honey: $^{1}/_{8}$
Sweet beer: $^{1}/_{64} + {}^{1}/_{64}$

In light of the above explanation we can rewrite quantities on the ingredient list for Paragraph 75a as follows:

Cumin: $^{1}/_{64}$ = 5 *ro* = 70 mℓ
Valerian: $^{1}/_{16}$ = 20 *ro* = 280 mℓ
Seeds of the…: $^{1}/_{32}$ = 10 *ro* = 140 mℓ
Onion: $^{1}/_{4}$ = 80 *ro* = 1.120 ℓ
Salt of the north: $^{1}/_{64}$ = 5 *ro* = 70 mℓ
Honey: $^{1}/_{8}$ = 40 *ro* = 560 mℓ
Sweet beer: $^{1}/_{64} + {}^{1}/_{64}$ = 5 *ro* + 5 *ro* = 140 mℓ

The explanation above places the ingredient quantities into a volume format that we are familiar with. This makes it easier to understand the ancient Egyptian quantities mentioned in the treatment recipes.

8.2.1 The *ro* quantities (first method of quantity indication)
The *ro* quantities are expressed as follows:

$^{1}/_{2}$ =
$^{1}/_{4}$ = 
$^{1}/_{8}$ = 
$^{1}/_{16}$ = 
$^{1}/_{32}$ = 
$^{1}/_{64}$ = 

With the exception of carrier liquids, and the few recipes where the quantities are expressed in single units, and the two occasions where quantity is expressed as *hin*, all the other ingredients in the *Brooklyn Papyrus* treatments are expressed using the *ro* quantities in the recipes.

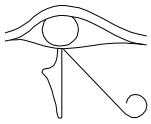
8.2.2 The Eye of Horus fractions (second method of quantity indication)

A very important principle lies behind the Eye of Horus fraction quantities. Each fractional hieroglyph representing a quantity is associated with a part of the Wadjet 'Eye of Horus'. The Wadjet eye was an amulet that was very popular (Pinch 2002:131). This eye of Horus was his left eye, or the lunar eye (Pinch 2006:27).

In the *Contendings of Horus and Seth*[238], the eye is destroyed and it is restored by Isis (El Saeed 2016:115). In another version the lunar eye is destroyed by Seth and restored by Thoth (Pinch 2006:27). This eye could also represent the monthly destruction of the moon and when Thoth put the eye back in its place, cosmic order returned (El Saeed 2016:115).

According to Pinch (2002:132), rituals were performed in temples on a monthly basis which involved putting the eye of Horus back together again. The restored eye was used by Horus to revive Osiris; and Horus, in his role of Horus the Physician, was called upon to help heal a multitude of ailments (Pinch 2002:132). Based on this, one could consider that to represent the ingredient quantities as fractions (parts) of the eye of Horus is an intention to represent putting the pieces back together to bring about order and healing. Interestingly, the fractions add up to $^{63}/_{64}$ and, according to Brier (2001:145) it is presumed that the missing $^{1}/_{64}$ would be supplied magically by Thoth.

Below is an illustration of the Eye of Horus:



Each part of the eye represents a fraction of the *heqat* as follows:

$^{1}/_{2}$ 

$^{1}/_{4}$ 

$^{1}/_{8}$ 

$^{1}/_{16}$ 

$^{1}/_{32}$ 

$^{1}/_{64}$ 

[238] The *Contendings of Horus and Seth* is a long New Kingdom narrative that tells of the conflict between Horus and Seth. There are numerous versions of this narrative, which was probably read aloud as entertainment, and deals with the problem of succession (Pinch 2002:29).

When a fluid is used as a carrier liquid in the *Brooklyn Papyrus* treatments, the quantity is almost always given as an Eye of Horus fraction. Sweet beer, beer, fermented liquid, water and wine (except in Paragraph 78b) are always given this way. In addition, the following liquids are occasionally given as an Eye of Horus fraction: milk of a goat (in Paragraph 69), mucilage of fermentation (in Paragraph 75b), sesame oil (in Paragraph 91a), blood of a cow (in Paragraph 91a), and blood of a deer / gazelle (in Paragraph 91c). Mucilage of fermentation is only used once as a carrier liquid, and this is in Paragraph 75b. In all other listings of this ingredient in the recipes, its quantity is expressed as a *ro* fraction. Where sesame oil (see Paragraph 91a, 7.2.126), cow blood (see Paragraph 91b, 7.2.127) and deer / gazelle blood (see Paragraph 91c, 7.2.128) is expressed as an Eye of Horus fraction, they are the only ingredient in their respective treatments.

One can conclude that where an ingredient is a carrier liquid (except for the one example of wine in Paragraph 78b) or the ingredient is the only one in a treatment, it is expressed as a fraction of the Eye of Horus. The exception to this would be where the quantities are given in single units or *hin* (see 8.2.3 below).

8.2.3 The *hin* quantities (third method of quantity indication)

On only two occasions in the *Brooklyn Papyrus* treatments are the quantities are given in *hin*. These are: the mucilage of fermentation in Paragraph 51 (see 7.2.47), and the beer in Paragraph 70 (see 7.2.82).

8.2.4 The single unit quantities (fourth method of quantity indication)

The fourth method of indicating quantity used in the *Brooklyn Papyrus* recipes is by expressing a single unit or multiple thereof. An example of this method is found in Paragraph 88b:

red ochre: 1

fly specks: 1

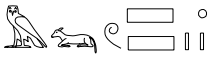
wild lettuce (or sweet clover): 1

Presumably this can be interpreted to mean one measure each of red ochre, fly specks and wild lettuce (or sweet clover), but the sizes of such measures are unknown.

8.3 METHODS OF INGREDIENT PREPARATION

Nunn (2002:137) rightly says ‘If a plant has an active principle, it may be confined to one part, and be critically dependent on extraction procedures’. In other words, it may be the roots or the leaves or the bark of a plant that was considered to hold the healing properties required, and the ingredient needed to be crushed and steeped in a liquid, or heated in order to release these desirable properties. Similarly, in animal products it may be the blood or the fat, for example, which was needed and incorporated into the treatment in a specific manner. Therefore, the two important questions raised about ingredient preparation in the *Brooklyn Papyrus* are: What methods were used on the ingredients that were incorporated into the snakebite treatments? How were the individual ingredients made into a treatment?

8.3.1 Crushing or grinding of ingredients

One of the most frequently used expressions in the treatment section of the *Brooklyn Papyrus* is the instruction to crush or grind the ingredients finely or smoothly. This is expressed as  (*nḏ snᶜᶜ*). Sometimes the instruction is extended to include  (*m ḫt wᶜt*), literally ‘in one thing’, which can be understood to mean ‘into a homogenous mass’. In other words, the ingredients must be thoroughly mixed together. Another extended instruction of the phrase *nḏ sᶜᶜ* is  (*m jwšš*) meaning ‘into gruel’. The whole instruction is, therefore, ‘crush finely into gruel’.

Sometimes it is a single ingredient of which gruel is made before being added to the rest of the ingredients, for example, gruel of barley, or gruel of male clay. In Paragraph 40 the instruction for the preparation of the ingredients is the word  (*sḥm*) meaning ‘crush’. An unusual instruction appears in Paragraph 64b, being the word  (*tmtm*) with a meaning of ‘pulverise’.

8.3.2 Filtering or straining of ingredients.

As one can imagine, some of the mixtures needed to be filtered or strained in order to omit bits of debris such as grit or twigs. The word for ‘filter’ or ‘strain’ is *ᶜṯ*. In the *Brooklyn Papyrus* this word is expressed in an abbreviated form as , or  , or .

Straining or filtering was performed by pouring the mixture though a piece of fabric, from one container into another or, as is explained by Nunn (2002:139), one could press the ingredients through a copper strainer – a round plate with holes perforated in the centre (see Figure 96 below).

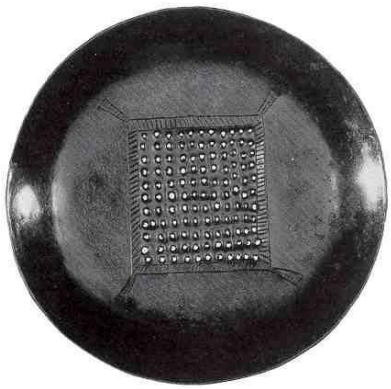


Figure 96: Copper strainer.[239]

In Paragraph 67 the ingredients are placed into a filtration pot. In Paragraph 75a the instruction is given for the ingredients to be filtered through a cloth.

8.3.3 Heating of ingredients

Individual ingredients could be heated to transform them before adding them into the mix, such as the boiled donkey hoof of Paragraph 44, or the dried strip of tortoise hide in Paragraph 79a. The entire mixture could be heated and this occurred mainly for treatments that were to be used as a poultice or under a bandage. The instruction for heating for use of the treatment on the body is very specific and is given as follows: *srf m srf n ḏbʿ* (heat to the temperature of a finger).[240] This is quite a sensible instruction because if one can tolerate the heat when one dips one's finger into the mixture then it is not too hot to place on the wound and is at a temperature that can be tolerated by the patient who is, no doubt, in much pain.

8.3.4 Specific forms of ingredients

Sometimes the treatments require certain ingredients to be in a specific form. Two examples are given in 8.3.3 above, in other words, boiled donkey hoof (Paragraph 44) and strip of dried tortoise hide (Paragraph 79a).

[239] Photograph of the copper strainer is in the public domain. Photographer unknown. Source: Wikimedia Commons. This is a copper alloy strainer from the Ptolemaic Period and is in the British Museum, accession number EA 38230 (Nunn 2002:139).
[240] All English translations in parentheses are by Wendy Golding unless otherwise noted.

- Some ingredients are required in a dried state, for example: dried liver (see Paragraph 47b), dried terebinth resin (see Paragraph 60) or dried myrrh (see Paragraph 61b).
- Ingredients may also be specifically required as 'fresh', for example: fresh curds (see Paragraph 47e), fresh moringa oil (see Paragraph 54b) or fresh terebinth (see Paragraph 61b).
- Ingredients may be ground or powdered, such as the instructions to use ground terebinth resin (see Paragraph 81), powder of carob pods (see Paragraph 58), powder of valerian (see Paragraph 59), or barley flour (see Paragraph 76).
- In one instruction it is filings of copper that are needed (see Paragraph 51c).
- Other specific forms of ingredients are: barley mash (see Paragraph 46i), gruel of barley flour (see Paragraph 76), and lees of vinegar (see Paragraph 48c).
- Although salt is commonly used in the treatments, the most frequently requested form is *ḥmɜt mḥt* (salt of the north or the delta region). Natron is used occasionally and in one instance 'natron of the oasis' is prescribed (see Paragraph 61b).
- In Paragraph 85a the instruction is given to cut the newt open 'like a bulti fish'. Fish were sliced open from the dorsal to the ventral side and laid open.

8.4 MAGICAL TREATMENT METHODS

One has to contemplate the words of Leake (1952:77) when he says that there is an 'essentially scientific approach' to illness by the ancient Egyptian medical personnel, and then refers to the general population as having an 'anxious, confused, irrational, and superstitious attitude' regarding disease. Two comments can be made in response to this.

Firstly, it would be true to say of the *Brooklyn Papyrus* that it does have an 'essentially scientific approach' to snakebite treatment. We have seen how the snakes and the effects of their bites are described in the first part of the Papyrus. The second part of the Papyrus sets down recipes to heal the bite victim with treatments of botanical, mineral and animal origin – in the form of treatments to be swallowed, emetics, poultices, fumigations, and occasionally with magic spells. Some treatments are aimed at providing relief from certain conditions associated with snakebite, while others are aimed at treating the bites of specific snakes.

Secondly, the ancient Egyptians were great believers in magic, which formed an integral part of daily life. Their attitudes towards illness and disease may well be 'anxious' or 'confused' (these would be natural reactions to illness), but they can hardly be considered 'irrational' or 'superstitious' (cf Leake 1952:77). We cannot impose our modern-day thoughts and opinions on the ancient mind. Magic played a very important role in the healing process in ancient Egypt, as it does to people from many different cultures across the world, both ancient and modern.

The references to 'magic' in these notes are not intended to be subjective in any way, nor is it intended to separate magical from medical in healing practices because, in the words of Ritner (2008:8), magic was practised on a daily basis in order to maintain balance. Treatment, therefore, occurred on a physical level (treatment of the body) as well as on a psychological level (treatment of the mind), and can be thought of as holistic.

The use of magic in therapy and healing cannot be ignored. So important was magic to the ancients Egyptians that they embodied it in a goddess whom they named Werat Hekau – a goddess represented in the form of a cobra. Magicians even used snake-shaped wands which were probably a representation of this very goddess of magic (Pinch 2006:11).

Because ancient Egyptian healers and patients alike believed in magic, magical inferences and actions included in the medical texts, which were largely free of magic, may well have been performed by the healers in order to appease and placate the patients. Such actions would have calmed the mind of the patient, and a calm patient is more receptive to treatment and recovery.

On a psychological level, magic had its value in promoting a positive mind-set in the patient. With magic and religion being such an integral part of daily life, it is interesting, really, that less than 10 per cent of the *Brooklyn Papyrus* treatments have obvious magical content such as recitations, which incorporate invocations, addresses to the venom or mythological inferences.

Having said this, one must also consider that certain ingredients in the treatments may have been selected for their perceived magical powers and mythological connections. These less

obvious magical connections would boost the percentage of magical content of the manuscript.

8.4.1 The word *pḫrt*

The Egyptian word for treatment, *pḫrt*, itself has strong magical overtones, as discussed briefly in 7.2.41.1, where the verb *pḫr* with its possible meanings of 'to go around' and 'to circle' is suggested to be the root of the word *pḫrt* (Ritner 2008:57).

Rituals for purification involve encircling and have been present from the earliest funerary rituals to the Graeco-Roman temple ceremonies (Ritner 2008:58). The magical essence of the Egyptian verb *pḫr* becomes more apparent with the Demotic verb *pḫr*, which means 'to enchant', according to Ritner (2008:61).

Preparation of a treatment (*pḫrt*) for a patient, therefore, involves so much more than the act of putting ingredients together and treating the patient according to instruction. The treatment is intended to 'encircle' and protect the patient, and, as Ritner (2008:85) says, can be considered as that which 'contains' the disease. This 'encircling' of the patient can be seen in the treatments that are made to cover the body of the patient in Paragraphs 43c, 44a, 66b, 83, 95b and 95c (cf 7.2.9; 7.2.10; 7.2.78; 7.2.111; 7.2.134 and 7.2.135).

8.4.2 Recitations

It is interesting to note that Nunn (2002:96) does state that recitations are not common in trauma cases but are frequent in cases of internal illness. This makes sense because in a trauma case where there is external injury involved, one can clearly see the problem; whereas in a case of an internal injury, or illness, one cannot see the problem and so one is more likely to attribute this to the 'hand' of a particular god or demon. Therefore, on the basis of Nunn's comment one might conclude that snakebite incidents were rated as trauma. However, bite wound and tissue damage aside, it appears that the healers realised that the physical symptoms associated with an envenomed bite were due to the venom that was transferred from the snake via its fangs into the victim and that it was thus something that was present in the body of the patient that could not be seen, and needed to be extracted somehow, whether by exorcising or vomiting.

It was an important concept of Egyptian magic to believe in the 'creative power of words and images' (Pinch 2006:16). The recitations incorporated into the medical papyri in general can take various forms. An incantation is the recitation of words as a magic spell or ritual[241]. The incantations in the *Brooklyn Papyrus* can sometimes take the form of an invocation[242] where the one performing the recitation calls upon a deity for assistance. Often there are references to mythologies in the incantation. It was common practice to align the patient with a specific deity and as the deity was healed in the incantation, so the healing would pass to the patient. In the *Brooklyn Papyrus* specifically, the recitation is sometimes addressed directly to the venom, commanding it to leave the body of the patient and fall to the ground.

Out of 144 treatments (including their alternatives), in the *Brooklyn Papyrus*, only 12 treatments have recitations of some sort. This equates to 8.33 per cent of the treatment recipes, which is remarkably low (see Table 14 below). In this regard the *Brooklyn Papyrus* is similar to the majority of medical papyri.

Table 14: The location of magical content in the *Brooklyn Papyrus* treatments

Paragraph number	Type of recitation
41	Combines incantation, myth, invocation and command to the venom
43b	Incantation, address to the venom
79b	Incantation, mythological reference
79c	The instruction for 79b
80b	Incantation incorporating an address to the snake
80c	Instruction for 80c
85c	Incantation
90b	Incantation, invocation
97a	Invocation
97b	Incantation
98b	Incantation
98c	Instruction for 98b
99a	Incantation
99b	Incantation
99c	Incantation incorporating reference to mythology

[241] https://www.merriam-webster.com/dictionary/incantation (accessed 21st December 2019).
[242] https://www.merriam-webster.com/dictionary/invocation (accessed 21st December 2019).

It is interesting to note that, aside from Paragraphs 41 (see 7.2.3) and 43b (see 7.2.8), these inclusions of recitations occur towards the end of the treatment section of the *Brooklyn Papyrus*. It does cause one to speculate on the possibility that these paragraphs may have been a later addition to the original collection of treatments.

8.4.2.1 Invocations for assistance

In an invocation a deity is called upon or appealed to for assistance in the healing of a patient. In the *Brooklyn Papyrus*, the deities that are associated with magic and healing, such as Serqet, Isis, Horus, Ptah and Thoth, are referred to in the paragraphs of magical treatments. However, only Horus and Thoth are appealed to directly for assistance. It is not surprising that Thoth is called upon because he is the god in the myth of Isis and Horus who comes to save Horus from the scorpion sting or snakebite, bringing with him his magic powers and spells. Furthermore, according to Ritner (2003b:198), Thoth was the patron god of medicine. In Paragraph 43b (see 7.2.8), Thoth, god of magic (among other things), is requested to exorcise the venom and throw it to the ground. Thoth played an extremely important role in magic and medicine because not only could he write; he could also recite the spells that were written down (Nunn 2002:102).

Not only deities, but also plants are called upon to assist in the fight against venom and appealed to just as much as the deities. The importance of these particular plants is not entirely clear but it may well be that they have a role in religion or in myth that we are unaware of. In Paragraph 41 (see 7.2.3), it is the onion which is addressed and from which assistance is invoked in disposing of the venom. The onion (*Allium cepa*) is the most popular botanical ingredient in the *Brooklyn Papyrus* treatment recipes. In the last line of the recitation the onion is likened to a snake when dealing with the venom: 'the burn of your flames is against it and it dies of your bite'. The onion is held in great esteem and is greeted in the recitation and referred to as the 'unrivalled one which guards all the gods'. Its importance is indicated by the line from Paragraph 42a (see 7.2.4) in which the onion is always close at hand to the Serqet priest. Other plants that are invoked in the *Brooklyn Papyrus* are the Khair plant (*Capparisdecidua*)[243] and the reed. In Paragraph 90b the healer is instructed to say magic words over the patient, invoking the Khair plant to 'kill the venom of

[243] According to Sauneron (1989:121) the *itjerout* plant is the *Capparis decidua*, a member of the caper bush family of plants. Research is currently being done in India on *Capparis spinosa* (Caper bush) regarding possible snakebite treatments.

the Abominable!' This is most likely a reference to Apep, the evil snake of the Underworld. Apep was referred to as the Abominable and was the enemy of the sun god Ra as he traversed the Underworld in his solar barque at night. He was the most evil of all the snakes in Egyptian mythology and a command to neutralise his venom would probably put the patient at ease and give him faith in the crushed up Khair plant which he is about to drink as a part of the treatment according to the recipe made up in Paragraph 90a (see 7.2.123). The reed is appealed to in Paragraph 99c (see 7.2.147) by the healer: 'O these reeds which come from Min, go out […],go out for me as (the venom) has killed Horus ... turn around from the sky, and come down upon the heart of the enemy of Osiris!' One can imagine the pointed reed, growing towards the sky, turning and aiming itself into the heart of the enemy of Osiris!

8.4.2.2 References to mythology

One reads in Nunn (2002:96) that people in ancient Egypt believed in supernatural forces and that disease or illness could be brought about by the gods or demons. For this reason, deities were invoked to help with healing, and demons were commanded to leave the body (Nunn 2002:96). This attitude explains the use of mythology in healing, particularly if a deity in the myth was responsible for the misfortune wrought upon another deity or a person. That deity then holds the key to the cure – this is evident in the myth of Isis and Ra where Isis is responsible for Ra being bitten by a venomous snake and only she can cure him (see below).

Two important myths contain instances of gods being bitten by a snake and subsequently healed. References to these two myths appear in some of the recitations in the *Brooklyn Papyrus*. These mythological references would, no doubt, provide reassurance to the snakebite victim and hopefully induce a positive state of mind in that he / she, too, would be healed.

The first of these important myths is that of Isis and Horus. A good version of the narrative is given in Budge (1971:133–136): In the myth, Isis gives birth to Horus and conceals him in the reeds while she goes on a visit to the city of Am. On her return she finds Horus very close to death. She utters a cry and the people who live in the papyrus swamps come rushing to her aid, but nobody knows how to resuscitate Horus. Even a renowned wise woman could not put life back into him. Initially it was thought that Horus had been afflicted by his brother Seth but it was subsequently discovered that he had been stung by a scorpion and bitten by a snake. Nephthys, the sister of Isis arrives and grieves with her. She is accompanied by Serqet

who enquires of Isis what happened to Horus. Nephthys tells Isis to issue a cry to the heavens for aid from the gods. Thoth hears the cry and arrives with his magical powers. Horus is healed and he returns to life. In Thoth's address to Isis he refers to her as 'Isis, whose mouth knoweth how to utter charms, no suffering shall come upon thy child Horus' (Budge 1971:135). As a result of being healed, Horus appears as a conqueror of dangerous animals in the *Metternich Stele* of the Thirtieth Dynasty and the cippi of the Late Period. As one who has survived the sting of a scorpion and the bite of a venomous snake, it is as if he has immunity from them. Both the *Metternich Stele* (see Figure 97 below) and the other *Cippi of Horus* were believed to have magical healing powers (see 5.2.13.4).

Figure 97: *Metternich Stele*[244]

Pinch (2006:29) tells us that the wounding of Horus occurs frequently in magical texts and we find it here in the *Brooklyn Papyrus*. A reference to the Isis and Horus myth is found in Paragraph 79b (see 7.10.102) where there is a conversation between Horus and his mother Isis. She says to him: 'I come to you, Son! Beautiful Horus! I am your mother Isis! I am your

[244] *Metternich stele* is licensed under https://creativecommons.org/publicdomain/zero/1.0/
Material: metagreywacke stone. Date: 360–BCE, during the reign of Nectenabo II, Thirtieth Dynasty, Late Period. Accession number: 50.85. Overall height: 83.50 cm; width: 33.50 cm. Currenty on view at the Metropolitan Museum of Art, New York.
https://www.metmuseum.org/art/collection/search/100002599?img=1. (Accessed 9th July 2020).

protection.' In the recitation, the snakebite victim (as Horus) is then addressed by the healer: 'You, who the Great Nun (lit. 'primal waters') created! The venom does not circulate in you! It could not create a way for itself to move forward. It turns back (and) retreats. This venom which the betjet has placed within you does not remain in you. (That which) was placed within you has returned to the one who acted against you.' These words would surely serve to provide comfort to a distressed victim. A further example of the demise of Horus is found in Paragraph 99c: 'go out for me as (the venom) has killed Horus' (see 7.2.147).

The second important myth is the *Myth of Isis and Ra* (or, Ra's Secret Name), which appears in Pinch (2006:29–31; 2002:69–71) and Budge (1971:137–142). The myth comes from the *Turin Magical Papyrus* (Pinch 2006:30; Budge 1971:136). Ra the creator god has many names and these names are not even known by the other deities. Isis believes that if she knows Ra's sacred name it would give her power to become the supreme goddess of the earth and enable her to have a status in the heavens like that of Ra. Ra is growing old and he drools and his saliva falls to the ground. Isis gathers together soil and the great god's saliva which she forms into a snake. She leaves this snake on a path frequented by Ra and, as she expected, the snake bites Ra. It is a venomous bite and Ra begins to suffer and life starts to slip from him. As he is filled with pain and sickness, Ra calls upon all the gods. Isis, too, arrives and she bring along her magical powers and words. Isis tells Ra that he has been bitten by a snake and that she can heal him. She asks Ra for his sacred name in exchange for healing him. Initially Ra does not comply but as he feels the ravages wrought by the venom and his life being extinguished, he reveals his name to her. Isis then heals him, saying: 'Depart, poison, go forth from Ra. O Eye of Horus, go forth from the god, and shine outside his mouth. It is I who work; it is I who make to fall down upon the earth the vanquished poison' (Budge 1971:141).

A reference to this Isis and Ra myth is found in Paragraph 79b (see 7.2.102) in the line: 'Something has pricked me (which) I did not see'. This refers to the unseen snake created by Isis which bit Ra as he walked along the path.

As Isis appears in these two very important myths connected to overcoming deadly illness, one can now understand why she is often invoked or mentioned in recitations intended for healing. Isis is a possessor of magic and healing words.

While Horus could be the victim, he could also be the saviour (Pinch 2006:29). Paragraph 80b (see 7.2.105) includes an invocation that has its origin in the early form of the Isis and Horus myth in which, says Pinch (2006:27) Horus defeats the venomous snakes that are sent to harm him. Part of the recitation in Paragraph 80b reads: 'Horus [says] to the one who has been bitten (lit. 'the one under his bite wound'): 'Behold! I cause that which is in your mouth to turn around! If you harm me, (I will) be following you! As for the bite, I chase it away. I have expelled the venom outside (lit.'to the path'). As for the bite of Horus, great is his conjuration.'

Paragraph 79b (see 7.2.102) contains further mythological references in the form of *The Contendings of Horus and Seth*. This can be found in the lines: '[it was] difficult against Djebaout on the side of the lake, as the matter is judged in the presence of the gods, (and) they will fight in the town of the Two Contestants'. The two contestants are Horus and Seth.

It is possible that the paragraphs containing the appeals to two plants, namely the onion and the Khair plant, may have some original basis in myth. Unfortunately, we do not know what those myths are. Paragraph 41 tells how the tooth of the Great God falls upon the ground and grows green on the desert floor (see 7.2.3). In this regard, the tooth of the god is likened to the onion bulb, which is white, but grows green leaves once it is planted. Further on in this same Paragraph 41 it is said that the onion protects Horus from those who attend on Seth (i.e. those who do the bidding of Seth). This may be another inference to *The Contendings of Seth and Horus*.

The Book of the Heavenly Cow is alluded to in Paragraph 43b (see 7.2.8) with the line: 'the insurgents have been exorcised, after they rebelled against Ra himself'. In this particular myth, humankind plans to rebel against Ra as he grows older (Pinch 2006:25–26).

Paragraph 90b (see 7.2.124) contains three possible links to mythology. Firstly, the Khair plant 'which grows under the side of Osiris' is linked to rebirth and resurrection (see 7.2.124.1). Secondly, there is a reference to the Great Tom Cat, or the Cat of Heliopolis, who slays Apep, monster serpent of the Underworld, with a knife. This is suggested with the line 'the cat inflicts a wound (on him)' (see 7.2.124.3). Thirdly, there may be a connection between the 'barley (or grain) of Khnum' and the myth of the ending of seven years of famine in Egypt (see 7.2.124.6).

8.4.2.3 Command to the venom or the snake

Isis says: 'it is I who make to fall down upon the earth the vanquished poison' (Budge 1971:141). The command to venom to 'fall to the ground' seems to derive from the myths of Isis and Ra and of Isis and Horus. In the myth of Isis and Horus, Thoth says 'down to earth, O Poison!' (Rundle Clark 1959:192). The *Metternich Stele* also makes reference to the casting out of poison from the snakebite victim to the ground. This same command is issued to the venom in three treatments in the *Brooklyn Papyrus*: Paragraph 41 (see 7.2.3), Paragraph 43b (see 7.2.8) and Paragraph 80b (see 7.2.105). The direct address to the venom suggests that it was viewed as a malevolent entity of sorts rather than just a liquid substance. It is clear that the healers understood that a substance was produced by the snake that was injected via its fangs into the victim and that this substance caused damage, illness and even death. The healers knew exactly what they were dealing with in terms of potential danger to the person who had been bitten. In Paragraph 41 we read 'Disappear, O venom! Come, get out to the earth!' In Paragraph 43b the recitation incorporates an address to the venom in which it is told to refrain from entering the body of X, son of Y, and then commanded to come out of the bite victim's body and fall to the ground. Paragraph 80b is a recitation which includes instructions to the *bedjet* snake and the venom. The venom is, once again, commanded to fall to the ground.

8.4.3 Magical actions

A variety of actions of a magical nature are performed in several of the treatments in the *Brooklyn Papyrus*. The actions to be performed, the objects and the ingredients used were just as important as the words that were recited (Pinch 2006:76). The idea behind reciting words over ingredients to be used in medicinal preparations is that the treatment would become imbued with *heka* (magic) in order to make the treatment more effective (Pinch 2006:80).

8.4.3.1 Drawing

One of the first examples of magical action in the *Brooklyn Papyrus* (other than fumigation – see 8.5.7) occurs in Paragraph 79c (see 7.2.103) which contains specific instructions for the incantation in Paragraph 79b (see 7.2.102) to be said over images of Ptah, Isis and Serqet. These images must be drawn on new papyrus and placed on the throat of the patient. It is important to understand that, as Pinch (2006:16) says, an image or even a name could

represent the real thing. So, by drawing images of these deities, it may be intended that they are physically present to assist in the healing of the patient.

8.4.3.2 Spitting

In Paragraph 84 of the *Brooklyn Papyrus* (see 7.2.112) the patient must spit onto the ground four times, and this reminds one of the commands to the venom in Paragraphs 41, 43b and 80b to 'fall out upon the ground' from the body of the patient (cf. 7.2.3; 7.2.8 and 7.2.105). This act of spitting is an important magical action according to Ritner (2008:74).

Spittle, says Ritner (2008:76) was used in creation. In this regard it is also present in the myth of Isis and Ra in which Ra's spittle is used by Isis to create a snake which bites him, and this, says Ritner (2008:76), is a spell for healing scorpion stings. We have seen how this very same myth has been used here in the *Brooklyn Papyrus* as an equally important part of the snakebite treatments, for example, in Paragraph 79b (see 7.2.102).

The act of spitting may be used for purification in the hope that the power of the act will cure or resuscitate, says Ritner (2008:79). An interesting method of spitting involves filling one's mouth with water or other liquid and pouring it onto the head of the patient. This concept of purification by spitting is used in the *Brooklyn Papyrus* in an attempt to purify the body by removing the harmful venom. It is important to understand, according to Ritner (2008:87) that spittle is a 'conveyer or medium' for the 'blessing or the curse'.

8.4.3.3 Swallowing

The instruction for a number of the *Brooklyn Papyrus* treatments is for the mixture to be swallowed by the patient. In addition, there is one really interesting treatment, in Paragraph 85c (see 7.2 115), in which the healer is instructed to recite the words of the Controller of Serqet, namely 'I know it', while expelling a piece of broken-off fang from the bite wound. The fang must be expelled into a bowl of beer and dates which must then be drunk by the bite victim.

The act of swallowing is another magical action presented by Ritner (2008:103). The action internalises nourishment and, on a magical level, treatments. In the *Pyramid Texts*, the missing Eye of Horus is often identified with food offerings, and the eating of the offerings

internalises the eye and symbolises a return to the body (Ritner (2008:103) and, presumably, wholeness.

8.4.3.4 Recitations over treatments

Ritner (2008:107) explains that water which was poured over cippi was drunk by the patients. As the water poured over the magic words inscribed on a cippus, presumably it absorbed their magic powers, which were internalised as they were drunk. Similarly, one may presume that the same action was intended for words pronounced over a treatment: that it would harness the magical powers of the words, which would then be imparted to the snakebite victim either in the treatment to be drunk or into the bite wound in the instances where the words are pronounced over a poultice treatment. There are several examples of this magical practice in the *Brooklyn Papyrus*:

The recitation of Paragraph 80b (see 7.2.105) is recited over the remedy prepared in Paragraph 80a (see 7.2.104). The instruction for the recitation to be performed over the remedy is given in Paragraph 80c (see 7.2.106) and the treatment must be massaged into the limbs of the patient.

Paragraph 98b (see 7.2.143) contains an incomplete incantation due to lacunae in the text. Despite this, Paragraph 98c (see 7.2.144) informs the healer that these words must be recited over myrrh which is to be placed in the fire and used to fumigate the patient.

The recitation of Paragraph 99a (see 7.2.145) does not appear to make any sense. Sauneron (1989:132) thinks that the reference to the 'royal headdress in the sky' may have reference to a myth. It is possible, that the 'headdress' refers to large clouds which mask the sun from the barque of Ra. Darkness was the enemy of the sun god. Nevertheless, these words were to be pronounced over a bandage.

Paragraph 99b (see 7.2.146) would provide very calming words to a superstitious patient, saying that the fumigation being performed has aroused the coming of the gods. No doubt the arrival of a host of deities would bode well for recovery. Likewise, when Horus had been bitten by a snake in the myth of Isis and Horus, Isis appealed to all the gods. The words of this paragraph are to be recited over a broken item. We do not know what this item is owing to the lacuna in the text.

Paragraph 99c (see 7.2.147) contains a recitation that must be said over decorative items and cloth placed onto a potter's wheel. The significance of this action is not known. As Pinch (2006:80) says, sometimes spells are recited over items where the reason for the use of those particular items is not obvious.

Some of the recitations don't quite make sense, probably because of damage to the Papyrus. One of these recitations is found in Paragraph 97b (see 7.2.139). It does, however, involve the act of making fumigation and placing mill stone grindings in the fire – acts that are, no doubt, intended to pacify the patient and that must have some magical meaning unknown to us.

8.4.4 Choice of ingredients and their magical and mythological associations

What were the reasons for the choice of ingredients in treatments? They cannot be random and there must be important reasons for their selections, be it an association with a particular deity, perceived magical powers, or benefits observed over a period of time.

Parkins (2001:5) says that the choice of treatments and ingredients was originally based on magical properties that the ancient Egyptians believed these treatments and ingredients held. Those that continued to be used over a period of time were most likely the ones that had been observed to be of some benefit.

8.4.4.1 Amber

Heka, says Pinch (2006:81), was inherent in substances of 'mysterious origin', such as resin which was associated with the sun god owing to its golden colour. This golden colour is exemplified in amber (see Figure 98 below), a fossilised resin, of which there were no known deposits in Egypt (Serpico 2000:430).

Figure 98: Amber[245]

[245] Image by J. Kossowsky, PrinWest Trade Agency (2014).

The story relayed by Nicias about amber being formed from the rays of the sun (see 7.2.80.2) links this ingredient to the all-important solar gods, gods upon whom the creation and maintenance of life depends.

8.4.4.2 Barley (Hordeum vulgare) and wheat (Triticum turgidum, Triticum dicoccum)

Barley was an important plant for the ancient Egyptians, for not only was it consumed by the population in the form of bread, but, say Darby *et al* (1977:503), it was also used in offerings to the gods, and even fed with milk to sacred animals such as cats and ichneumons (a genus of wasp). The ancient Egyptians, according to Dioscorides, believed that wild wheat and barley were discovered by Isis and that Osiris showed humankind how it should be cultivated (Täckholm & Täckholm 1941:285).

Barley and wheat were linked to the Osiris myth involving the death, dismemberment and renewal of Osiris (Pinch 2002:91). At harvest time the crop is cut down, trampled and winnowed to release the grain. The renewal and resurrection of the god is associated with the germinating and growing of the grains for the new crop. Each year during festivals, figurines of Osiris were made and filled with mud and grain, and seeds were sown and watered until they germinated. These were called 'corn mummies' (Pinch 2002:91) or 'Osiris beds' or 'grain-Osiris' (Wilkinson 2003:120). According to Darby *et al* (1977:483) the Osiris bed could be covered with linen and then placed in the tomb with the deceased.

The link between Osiris and barley is beautifully expressed in *Coffin Text* 330 (Rundle Clark 1959:142):

> Whether I live or die I am Osiris,
> I enter in and reappear through you,
> I decay in you, I grow in you,
> I fall down in you, I fall upon my side.
> The gods are living in me for I live and grow in the corn
> That sustains the Honoured Ones.
> I cover the earth,
> Whether I live or die I am Barley,
> …

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https://commons.wikimedia.org/wiki/File:Baltic-amber-fossils-inclusions.jpg (accessed 23rd December 2019). Image released under Creative Commons Attribution-ShareAlike Terms 3.0 Unported license

Another deity linked to barley and wheat was Hapy, the embodiment of the inundation of the Nile, and its ability to bring life. One of Hapy's epithets was 'the maker of barley and wheat' and it was believed that Osiris returned each year once he had been revived by the waters of the flooding Nile and brought barley back with him each time (Pinch 2002:137).

Barley is linked to deities associated with life (Isis and Hapy) and also to resurrection (Osiris). Like with the *Vachellia* species, these links would make barley an important ingredient to use in medical treatments.

8.4.4.3 Blood

In the *Myth of the Destruction of Humankind* Ra calls upon his messengers to collect large quantities of a red mineral (presumably Nubian or red ochre). The mineral is ground up while maidservants make beer from barley mash. After 7000 jars of beer have been made, the red mineral is added and it takes on the appearance of blood. Ra pours all of this red beer onto the fields. The Eye Goddess, in the form of Hathor, sees her reflection in this red beer and is so delighted that she forgets that her intended mission was to destroy humankind (Pinch 2002:74–75). The fields of 'blood' effectively save mankind.

8.4.4.4 Blue lotus (Nymphaea caerulea)

It is not certain if the plant known as *snw pt* may be the blue lotus or the mustard plant (*Sinapis alba*). However, if *snw pt* is the blue lotus then it is a plant with very important links to ancient Egyptian mythology, and one that constantly weaves its way into art and architecture.

According to a myth in *The Contendings of Horus and Seth*, an angry Horus beheads his mother when she spares the life of Seth (Pinch 2002:150–151). Seth tears out both of Horus's eyes in order to punish him and buries them on a mountainside. When they grow, they emerge as lotus flowers (Pinch 2002:131–132) which 'light up the earth' (Rundle Clark 1959:204). In a version cited by Darby *et al* (1977:621) the eye sockets of Horus sprout lotus plants which are eventually transformed into eyes.

The lotus, as Pinch (2002:152) reminds us, is also linked to the sun god who emerges as an infant on a lotus in order to start creation. This arrival of the sun god in a lotus flower is part

of the Hermopolitan creation mythology (David 1980:89). The lotus, as a symbol of the sun, also appears in Heliopolitan mythology where Atum was believed to have emerged from a lotus bloom (Darby *et al* 1977:620).

Another myth relayed by Darby *et al* (1977:621) tells how the lotus bloom rose up out of the 'Sea of Two Knives'. The bloom opened to reveal a scarab which transformed into a child. When this child cried its tears formed mankind. In yet another myth, the god Nefertem is described as the 'lotus at the nose of Ra' and he is shown in anthropomorphic form with a lotus upon his head (Buhl 1947:91).

The blue lotus (*Nymphaea caerulea*) is the lotus associated with these myths, and it became a symbol for rebirth, as is suggested by funerary art in which the deceased would be depicted holding a fragrant lotus bloom to his or her nose. The scent of the blue lotus was believed to bestow new life upon the deceased as a 'follower of Ra' (Pinch 2002:158). The blue lotus is yet another plant that could be considered as an excellent ingredient owing to its associations with the giving of life.

8.4.4.5 Cattle

Fossil evidence, according to Darby *et al* (1977:90) shows the existence of bovines in the Nile Valley long before the appearance of ancient Egyptian civilization. What is uncertain is whether bones found at the northern sites of Merimda, Beni Salama or El Omari were from domesticated or wild bovines. It is also uncertain whether or not clay models of cattle from Lower Egyptian Pre-Dynastic sites indicate domestication or not (Darby *et al* 1977:90–91). However, Darby *et al* (1977:92) say that the inclusion of cattle names into the northern nomes prior to the unification of Egypt suggest that cattle had begun to play an important role in secular and religious life. After unification, the worship of cattle began to spread through the rest of Egypt.

The perceived characteristics of the wild bull – virility, strength and aggression – were often attributed to the Egyptian pharaohs, who frequently took part in wild bull hunting, not only to display these desired characteristics but also as a demonstration of order, represented by the pharaoh, succeeding over chaos – the chaotic world being represented by the wild bull in the hunt (Darby *et al* 1977:100).

Darby *et al* (1977:120) tell us that, according to Porphyry, who was writing in the third century CE, the Egyptians did not eat the meat from a cow. This was probably because, in the Dynastic Period, cows were believed to be sacred and they were associated with Hathor, as the mother of Ra, and sometimes associated with Isis and Nut (Darby *et al* 1977:124, 136). On the one hand Hathor was the loving mother goddess, and on the other hand she could have a terrible avenging aspect – as in the Myth of the Destruction of Mankind (see 8.4.4.3 above).

The Egyptian cult of the sacred Apis bull is well known. In the Serapeum at Saqqara the mummies of Apis bulls worshipped in Memphis were interred from the New Kingdom Period onwards. The Apis bull cult was, however, believed to have been introduced during the Old Kingdom Period (Darby *et al* 1977:128). One myth of the Apis bull, as explained by Diodorus, is that when Osiris died his soul transferred to the sacred bull, and from this sacred bull to every successive Apis bull (Darby *et al* 1977:129). According to Plutarch, it was believed that Osiris and Apis were one, and that the Apis bull should be regarded as the body of Osiris (Darby *et al* 1977:130).

Cattle are associated with very powerful deities and, accordingly, cattle products would be powerful ingredients to include in treatments.

8.4.4.6 Cilician fir (Abies cilicica)

Cilician fir produces an oil (*sft*) that has been identified as one of the seven sacred oils (Darby *et al* 1977:787; Nunn 2002:140).

Oils, according to Darby *et al* (1977:777) were offered in the temples to the deities by the pharaohs, and Roth (2003:154) says that ten sacred oils were used in the embalming process.

8.4.4.7 Clay

The ancient Egyptians believed that humankind was formed from clay or mud on the potter's wheel of the god Khnum (Pinch 2002:68). Perhaps this is why it was used on certain bite wounds.

8.4.4.8 Colour

The importance of colour to the ancient Egyptians has already been discussed in 7.2.26.2.

The colour of the animal from which an ingredient is obtained is sometimes specified in the *Brooklyn Papyrus* recipes.

8.4.4.9 Date palm (Phoenix dactylifera)

The date palm is yet another plant linked to healing and resurrection through certain deities. According to Buhl (1947:86), Hathor had her home in the third Lower Egyptian nome, Kom el-Hisn, where her local name was *nbt jmɜw* (mistress of the date palms). Buhl (1947:86) explains that the word *jmɜw* was the name given to the male date palms as opposed to the more familiar name *bnr*. Trees played an important role in the Osirian myths, and it was believed that the date palm grew from the innards of Osiris (Baum 1988:329).

8.4.4.10 Donkeys

Donkey hair had a magical status according to Darby *et al* (1977:236), and was knotted to make amulets, and medical treatments made use of their fat, liver, blood, gonads and bone marrow. The hoof and excrement appear in the *Brooklyn Papyrus* for use in wound treatments.

8.4.4.11 Fig (Ficus carica)

Although there are few finds of figs in the archaeological record, they are depicted in texts and tomb reliefs and, according to Darby *et al* (1977:709), the *Pyramid Texts* state that they are a divine food. Accordingly, a huge number of 15500 measures of figs were given as an offering to Amun-Ra by Ramesses III (Darby *et al* 1977:709).

8.4.4.12 Gazelle

The gazelle appears in many representations of Dynastic Period hunting scenes, and was often offered in sacrifice by pharaohs. A myth tells how, at the very first Sed Jubilee of the pharaoh Mentuhotep IV, a gazelle offered herself as a sacrifice (Darby *et al* 1977:234*)*.

8.4.4.13 Hippopotamus

The hippopotamus was associated with the goddess Ta-urt, a protective deity linked to pregnancy and childbirth (Darby *et al* 1977:257). Estes (2004:147) says that fat was the main product utilised from the hippopotamus, but that the skin and leg bones could also be used. In the *Brooklyn Papyrus* one finds hippopotamus fat used in a wound treatment.

8.4.4.14 Honey

In one Egyptian myth, Ra weeps and his tears turn into bees (Darby *et all* (1977:430). As a result of this, his followers are supplied with honey, also called 'liquid gold'[246].

The delta region of Egypt, with its agricultural lands, was particularly conducive for honey production and, as a result, the bee became a symbol for Lower Egypt (Darby *et al* 1977:430). Because honey was an important ingredient in offerings to Min, officials were dedicated to the keeping of bees and collecting of honey (Darby *et al* 1977:431).

8.4.4.15 Grape vine (Vitis vinifera)

In the Old Kingdom Period, wine and grapes appeared on lists of offerings (Baum 1988:156). A link between wine offered to the gods in the temples, and the Eye of Horus is explained in a myth from the *Papyrus Jumilhac*, in which Anubis takes the boxes containing the eyes of Horus and buries them on a mountainside, where they are watered by Isis in order to bring them back to life, and they eventually emerge as the first grape vines (Pinch 2002:132). Not only were grapes considered to be the Eye of Horus, but wine was thought of as the tears of the Eye (Baum 1988:262).

Depictions of bunches of grapes and vines leaves cover the ceilings of many tombs and, as such, the vine and its produce may represent the idea of rebirth and a justifiable connection with resurrection and Osiris (Baum 1988:244–245). According to funerary rituals in ancient Egypt, grapes were considered to be the equivalent of the Eye of Horus and were intended to express a return to natural order, and in magical texts where grapes were eaten or wine was drunk, they were a symbol of physical integrity and balance (Baum 1988:156). The gathering of grapes and the making of new wine heralded the arrival of the inundation and marked the renewal of the year (Baum 1988:244).

The grape vine and its produce (wine, grapes and raisins) are important to use in treatments for the properties which they represented and also for their mythological links to regeneration.

[246] https://www.apicultural.co.uk/tears-of-re-beekeeping-in-ancient-egypt (accessed online 23rd December 2019).

8.4.4.16 Jujube (Ziziphus spina-Christi)

The jujube, or Christ-thorn, was important enough in ancient Egypt to have its own cult. According to Buhl (1947:86), the main cult of Saft el Henne (Per-soped)[247] in the 20th nome of Lower Egypt was called *ḥt nbs*, or House of the Ziziphus tree, where a sacred grove of *nbs* trees existed (Baum 1988:172). In addition, there was a temple at Dakke[248] called 'the house of the *nbs* tree' (Buhl 1947:87). In fact, the jujube was considered to be a sacred tree of no less than 14 nomes (Buhl 1947:81–84), and Baum (1988:173) says that several towns in the nomes of Heracleopolis, Hermopolis and Antaeolopois carried the name *ḥwt-nbs*.

The principal deity at Saft el-Henne was Sopdu (Soped), Lord of the East, and, according to Baum (1988:172), he was shaded by the *nbs* tree, as were Ra-Horakhty, Hathor, Shu and Tefnut. The *nbs* tree was also believed to be one of the trees, along with the *jmꜣ* (*Maerua crassifolia* – meru tree) that served the deceased in *Pyramid Text* 8081a–b (Buhl 1947:89). According to Darby *et al* (1977:703) the jujube was used in funerary offerings.

During the Graeco-Roman Period the *nbs* tree was a sacred tree at Kom Ombo and also at Edfu (Baum 1988:186) where it appears in scenes in the chapel or chamber of the throne of Ra. As such, the tree is associated with the transmission of royalty and succession (Baum 1988:186).

8.4.4.17 Meru tree (Maerua crassifolia)

According to *Pyramid Text* 808a–b, the meru tree was believed to be one of the trees that served the deceased (Buhl 1947:89). At Coptos, Min is the great god which is in the heart of the *jmꜣ* tree on a New Kingdom stele (Baum 1988:187). The tree became the sacred tree of Min from the end of the New Kingdom Period, a role previously filled by the *ksbt* tree (Baum 1988:309). The *jmꜣ* tree appears as a sacred tree in several nomes. In the great nome list of Edfu, the *jmꜣ* is found alongside the *ksbt* tree (see 8.4.4.23), the sacred tree of the fifth nome of Upper Egypt in the Ptolemaic era. At Dendera, the *jmꜣ* is one of the sacred trees of the sixth nome listed in the Graeco-Roman temple of Hathor (Baum 1988:187).

8.4.4.18 Milk and milk products

Milk was used as an offering to the gods by pharaohs, and goddesses such as Hathor and Isis

[247] Saft el-Henna is a town on the provincial frontier of the delta.
[248] Dakke is located in Lower Nubia and the temple is from the Graeco-Roman Period.

are shown in countless reliefs suckling an infant Horus or a young prince (Darby *et al* 1977:760). Nunn (2002:14, 16) says that milk was highly valued as a food source and also as a medicinal product. Curds would have been made from the milk of cows, sheep and goats (Serpico & Whyte 2000:409). In the *Brooklyn Papyrus* recipes, milk from a goat is used in an emetic treatment.

Milk appears in a few ancient Egyptian myths. In the *Contendings of Horus and Seth*, Seth removes the eyes of Horus. Hathor cared for the injury to the eyes by using the milk (El Saeed 2016:116) of a gazelle (Rundle Clark 1959:204). Another myth tells how, at the base of the trees at the Abaton (one of the alleged tombs of Osiris at Philae), milk would be poured in order to 'revive and rejuvenate' Osiris when he was reborn (Buhl 1947:90). In yet another myth, Darby *et al* (1977:97) tell us of a statue of the pharaoh Amenhotep II (*circa* 1440 BCE) in which the pharaoh is drinking from the udder of Hathor. In the myth, the deceased Amenhotep meets Hathor while on his way to the Underworld. She gives him milk from her udder and this brings him back to life. The role of milk in this particular Egyptian myth leads one to understand the comment made by Darby *et al* (1977:157) that cow's milk was considered to be very powerful.

8.4.4.19 Moringa (Moringa pterigosperma, Moringa aptera or Moringa peregrina, Moringa oleifera)

The moringa tree is important owing to its association with Ptah and the god Kherybaqef (see 5.2.4.6, note 6). In addition, it is linked to Thoth who, as Thoth-Kherybaqef, resides in the chapel of Nefertoum at the temple of Seti I at Abydos (Baum 1988:132). From the end of the Third Intermediate Period, Kherybaqef appears on sarcophagi as a funerary deity incorporated into the Four Sons of Horus who protect the deceased (Baum 1988:132).

According to Baum (1988:133), the oil of the moringa was considered to be the Eye of Horus in the 'opening of the mouth' ceremony.

The moringa tree was important because it assisted in the continuation of the cycles of nature, assuring the victory of the eye of the god in the sky and also the passage of time from one year to the next. Apparently, on the first epagomenal day the priest who represented the king travelled in a palanquin of moringa wood to the chapel where a ceremony intended to divert

all danger from the renewal of the year and also from the king's reign was performed (Baum 1988:134).

8.4.4.20 Onion (Allium cepa)

The onion is clearly the most popular ingredient in the *Brooklyn Papyrus* treatments. In Paragraph 42a (see 7.2.4) it is described as *wnn.f m ꜥ ḫrp srqt* (being under the hand of the Controller of Serqet).

Paragraph 41 of the *Brooklyn Papyrus* contains a reference to a myth in which the onion is compared to the milk tooth of the god and which falls upon the desert floor and proceeds to grow. This comparison of an onion with a tooth is not unusual. Spell 33[249] (Pyr. 35 a in Bardinet 1990:120)[250] of the *Pyramid Texts* reads: *m n.k jbḥw ḥr ḥḏw ḥtmw rɜ.k: ḥḏw ṯɜ 5.*

'(Osiris Unis), accept Horus's white teeth, which provide your mouth' (Allen 2005b:21), and a bowl of five onion heads is presented as an offering (Allen 2005b:21). This comparison is made yet again in Spell 87 (Pyr. 79 in Bardinet 1990:120) of the *Pyramid Texts* found in the pyramid of Unas: 'Osiris Unis, get for yourself his [Horus's] white, sound teeth', and, once again, onions are made as an offering – a bowl of four onions (Allen 2005b:24). These two utterances are part of the 'opening of the mouth' ritual for the deceased, and the products which are offered play an vital role. Bardinet (1990:121) says that the offering of the onions[251] is important because they have the capacity to have a symbolic relationship with the formula in that they maintain the integrity of the teeth of the deceased. In my opinion there is also an interesting play on words because the word *ḥḏw* can have possible meaning of *zwiebel* – onion (Hannig 2006:619), while the word *ḥḏ* has a possible meaning of *weiß sein* – to be white (Hannig 2006:617).

One learns from Buhl (1947:91) that the onion was worshipped as a god into the early Christian times. In Paragraph 41 of the *Brooklyn Papyrus*, the word *ḥḏw* (onion) is followed by the determinative  to indicate its divine status in this particular invocation, where it is

[249] This particular utterance is located in the north side of pyramid of Unas (Allen 2005b:21).
[250] Allen's numbering of the spells is different to that of Sethe's numbering which is used by Bardinet.
[251] It must be noted that Bardinet (1990:120–121) translates the word *ḥḏw* as *ail* (garlic), and not the more commonly used translation of 'onion'.

addressed directly by the healer. The status of the onion makes it a vitally important and powerful ingredient to include in treatments and invocations.

8.4.4.21 Red ochre

In the myth of the creation of mankind by Ra, the great god finds himself in a situation where mankind starts to revolt against him (Rundle Clarke 1959:181). He first intends complete annihilation but then decides to seek advice from some of the other deities. Meanwhile, some of mankind escape into the desert where Hathor slays them. Ra refrains from wholesale destruction and gradually gains control over mankind. Not wanting further slaughter to take place, he has to prevent Hathor from acting again (Rundle Clarke 1959:182). Ra commands his messengers to go the Elephantine and come back with red ochre. He mixes the ochre into beer and it turns red like blood. It is then poured upon the fields and it distracts Hathor, who sees her beautiful image reflecting in it. After having drunk the ochre-stained beer she gets very drunk and does not even notice humankind, and as a result, they are spared (Rundle Clark 1959:183).

8.4.4.22 Reeds

David (1980:68–69) tells the myth of how the temple came to be created. In the beginning there was no life and no deities. A mud island begins to rise from the dark waters and a reed settles on its shores. The reed is rescued by a few demi-gods who have come into being. They plant the reed into the soil and soon the first god, a falcon, settles upon it. As more land emerges, so more reeds were added to the first reed to become a shelter, and the shelter grew bigger until it became a temple. The land immediately around it is considered to be sacred because of the falcon that alighted upon the first reed.

8.4.4.23 Vachellia and Senegalia species (Acacia)

According to Wilkinson (2003:168), Horus was associated with the acacia tree. He is linked to the acacia in the *Pyramid Text* 436a–b (Sethe's edition), where he is referred to as 'Horus who comes forth from the acacia' (Buhl 1947:86), and in one of the Horus myths he took refuge under an acacia when he was a child (Buhl 1947:86).

The acacia was also linked to Osiris in the Herakleopolitan[252] nome because, being the sacred

[252] Herakleopolis was the capital of the 20th nome of Upper Egypt, located near modern-day Beni Suef.

tree of this nome, as stated on an inscription in the Edfu temple, it was planted on the nome's sacred mound, and it was believed to be a burial place of Osiris. The green growth of the tree was considered to imitate the god's rebirth process (Díaz-Iglesias Llanos 2017:67–68). On account of these links with Horus and Osiris, the acacia is associated with healing and rebirth.

The Nile acacia (*Vachellia nilotica*) is thorny and has solid wood. It was, therefore, a symbol of protection of the king against his enemies. This protective quality was further supported by the acacia's link to Isis, Nephthys and Sekhmet (Díaz-Iglesias Llanos 2017:68). In Scene 13 of a frieze in the Chapel of the Throne of Ra at Edfu are words said by the king: 'the goddess of the *rḫyt* gives me her strength, the divine acacia (*šnḏt*) has broken (my) enemies (*šnṯyw*) to pieces, Horus of Edfu gives me his strength' (Baum 1988:317–318). Here, says Baum (1988:318), *šnḏt* is closely related to the massacre of the enemies of the king.

One of Sekhmet's epithets was 'lady of the Acacia' (Hart 2005:138). She was also the patron deity of the priestly healers known as *waeb Sakhmet* and, as a bringer of disease, it was also believed that she could heal, hence her epithet 'lady of life' (Hart 2005:139). Neith, too, was associated with the acacia, and a temple of the acacia of Neith was located near Crocodopolis at the lake of *bddw-kꜣ* (lit. lake of the watermelon) (Baum 1988:330).

The umbrella thorn acacia (*Vachellia tortilis*), which Baum (1988:162) believes the *ksbt* tree to be, is linked to the god Sopdu in the *Pyramid Text* 436a–b and 994b–d, where he is referred to as 'Sopdu who lives under his *ksbt* tree' (Buhl 1947:86–87). Pinch (2002:205) says that Sopdu was often shown with his hand raised in a threatening gesture to drive off supernatural forces and, in his falcon form, he lived in a sacred grove. The *ksbt* tree was also linked to Sobek in the *Pyramid Texts* (456a) in the line '(like) Sobek, ruler of *bꜣḫw*, thou wilt go through thy fields and through thy *ksbt* woods' (Buhl 1947:87). Hart (2005:151) describes Sopdu as a 'border-patrol god' and he was also a protector of the Sinai turquoise mines.

The *ksbt* tree was clearly important enough for offerings, as in the Late Period, in a procession at the temple of Isis at Philae, the king makes an offering of to the goddess of the third nome of Nubia with charcoal of *ksbt* wood (Baum 1988:156). Baum (1988:156) says that according to the great nome list from the temple of Horus at Edfu (which was written during the time of Ptolemy IV), the *ksbt* tree was one of the sacred trees of Hieraconpolis.

A hymn dedicated to Min-Amun on the *Parme 178 stele*, which dates to the end of the Middle Kingdom period and which is probably inspired in part by *Pyramid Texts*, refers to the god of the people of the *ksbt*. This text also appears at the temple of Seti I at Abydos, and again at the temples of Edfu and Hibis (Baum 1988:157). On another stele (*Lyon E 328*), which is possibly from Abydos, Min of Coptos (Gebtu) is shaded by a stylised tree which could be either *ksbt* or *jmꜣ* (*Maerua crassifolia*), says Baum (1988:157). From the Middle Kingdom period, the *ksbt* tree was the sacred tree of Min as god of the desert and of Coptos.

The *ksbt* tree is closely linked to the tutelary divinities of Coptos and Akhmin, which rule in the desert and its routes – a region in which the *ksbt* tree grows and the people worship Min, and also Sopdu, who is worshipped in the eastern parts of Egypt where the tree is found on the eastern border of the Delta, the desert isthmus and a part of the Sinai (Baum 1988:158).

The acacia was important enough to have its own sanctuaries. In Heliopolis in the Old Kingdom period, the goddess Sekhmet was worshipped at the Sanctuary of the Acacia. Furthermore, says Baum (1988:319), it was believed by the scholar Edel that a second sanctuary of the acacia existed at El-Kab in Upper Egypt. In addition to this, a hieratic papyrus from Tebtynis tells us of a Temple of the Acacia of Neith in the Fayoum (Baum 1988:319).

From the above information we can see that the acacia species are linked to powerful deities associated with rebirth and healing, as well as protection. These are qualities that would be considered vitally important in an ingredient used for healing purposes.

8.4.4.24 Watermelon (Citrullus lanatus)

The ancient Egyptians believed that the watermelon grew from the semen of a frustrated Seth, scattered on the ground when he transformed himself into a bull while pursuing Isis (Manniche 1989:92).

8.4.4.25 Willow (Salix safsaf or Salix mucronata, Salix aegyptica)

Symbolically, the willow was a highly important tree and was closely linked to Osiris as it provided shelter for his dead body. Wilkinson (1992:117) tells us that many tombs and towns had willow groves linked to them and that a ‘raising the willow’ festival was held annually as

an agricultural fertility ritual. Sacred groves were established in towns to house the *ba* of Osiris (Buhl 1947:89). It was believed that the *bennu* bird in its incarnation of the soul of Ra alighted on the willow tree in Heliopolis in the 'hall of princes' (Buhl 1947:89). It was also believed that the bird landed in the *trt* tree (willow) at the time of creation and that various deities including Ra-Horakhty, Horus of Edfu and Osiris took on an aspect of this bird (Baum 1988:198).

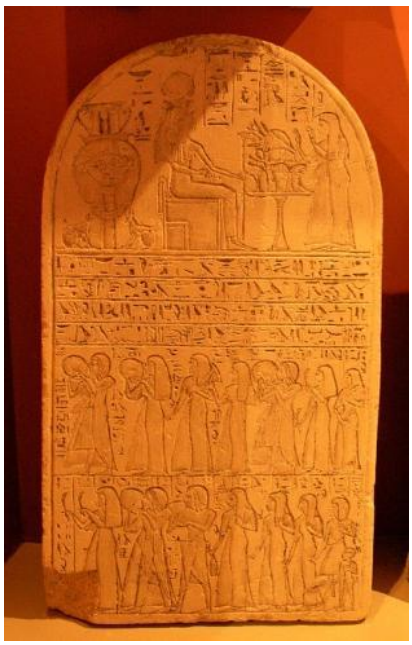


Figure 99: Bukanefptah's stele[253]

A stele (see Figure 99 above) raised at Deir el-Medina during the reign of Ramesses II indicates that a procession in honour of the goddess Nebet-hetepet took place. She was a goddess worshipped at Heliopolis where a sanctuary to her included a chapel of the raising of the willow[254]. A ceremony of the raising of the willow was presented at Medinet Habu, the mortuary temple of Rameses II and also at the Graeco-Roman temple of Hathor at Dendera (Baum 1988:198).

[253] A limestone stele from Deir el-Medina. Height: 53 cm, width: 30.50cm. Bukanefptah's stele is stele number 7 in the Banke's stelae collection (http://www.deirelmedina.com/lenka/Kingstonlacy.html. Accessed 8th July 2020).
[254] http://www.ancientegypt.eu/religion/heliopolis.php (accessed online 4th May 2019).

8.5 MEDICAL TREATMENT METHODS

It seems a bit of a misnomer to refer to non-magical methods of treatment as 'rational' because magical methods of treatment were quite rational and logical to the ancient Egyptians. For this reason, the non-magical or 'rational' treatment methods will be referred to as 'medical treatments' here.

Today's snakebite treatment protocol, explained in Muller *et al* (2012:362), is based on a 'syndromic approach'. In other words, medical personnel deal with the symptoms that present themselves. How does this approach compare with the approach used by the Serqet Priests?

Medical treatments for snakebite in ancient Egypt occurred on two levels. Firstly, the Priests of Serqet endeavoured to treat the physical symptoms caused in the patient by the venom. Secondly, they also treated the bite wound itself. They clearly realised that the wound could become infected and that tissue damage and necrosis could result in the case of certain types of snakebite.

The treatment recipes generally follow a simple pattern. The ingredients are listed, followed by an instruction on how they must be prepared. The preparation instruction is followed (in most cases) by another instruction on how the treatment is to be used.

8.5.1 The healer

Essential to the healing process is the one who performs the treatment, both on a magical and medical level. This was the *ḫrp srqt* or *sḫm srqt* (the *kherep Serqet*, or 'Controller of Serqet'), a priest or doctor with knowledge of the treatments required for snakebite. According to Nunn (2002:99) the Priests of Serqet were 'magicians who practised medicine'. (See 2.3.3).

8.5.2 The snakebite victim

The *Brooklyn Papyrus* refers to the snakebite victim in two ways: Firstly,  (*ḫrj dmt*), literally 'the one who has the bite wound'; and secondly,  (*wḫd dmt*), 'the one suffering the bite wound'. Although each phrase is expressed differently in the ancient Egyptian

language, the meaning is essentially the same and both phrases refer to the person who has been bitten.

8.5.3 Identification of symptoms

The ancient Egyptian healers were perfectly capable of recognising and describing symptoms associated with snakebite.

8.5.3.1 Physical symptoms

Symptoms (excluding bite wounds) in the snakebite victim that are described in the *Brooklyn Papyrus* are:

- bleeding (general) (see 7.2.70).
- breathing difficulties (see 7.2.9; 7.2.20; 7.2.81).
- collapse (see 5.2.11).
- death (see 5.2.2; 5.2.3; 5.2.4; 5.2.6).
- diarrhoea (see 7.2.129).
- disturbed vision (see 7.2.129).
- epilepsy (see 7.2.9).
- fever (see 5.2.5; 5.2.9; 5.2.10; 5.2.11; 5.2.12; 5.2.13; 5.2.15; 7.2.77; 7.2.142).
- loss of consciousness (see 7.2.136).
- loss of speech (see 7.2.137).
- lowered heart rate (see 7.2.9).
- non-reactiveness (see 7.2.95).
- pain (see 5.2.19; 5.2.24; 7.2.84; 7.2.91; 7.2.111).
- ptosis (descending paralysis staring with loss of control of facial muscles) (see 5.2.20).
- shivering, trembling (see 5.2.16; 5.2.21; 7.2.117).
- skin discolouration / disorder (see 5.2.13).
- sweating (see 5.2.7).
- thirst (see 7.2.83).
- vomiting (see 5.2.10).
- weakness or loss of strength (see 5.2.1; 5.2.7; 5.2.11; 5.2.12; 7.2.100; 7.2.111; 7.2.129; 7.2.138).

8.5.3.2 Wound descriptions and symptoms

A number of treatments in the *Brooklyn Papyrus* are aimed at treating the bite wound and the following symptoms:

- bite on a limb involving a reaction in the entire limb (see 5.2.14).
- bleeding from the wound (perhaps continual bleeding) (see 5.2.14; 7.2.101; 7.2.120).
- debris (broken-off fang) in the bite wound (see 7.2.113; 7.2.114; 7.2.116).
- deep bite wound (see 7.2.70; 7.2.44; 7.2.45; 7.2.46; 7.2.47).
- fluid from the wound (see 5.2.7).
- hardness around the bite wound edges (see 5.2.6)
- narrow bite wound (see 7.2.118).
- proud flesh (see 7.2.72).
- necrosis (see 5.2.5; 5.2.15)
- skin blistering (see 5.2.1).
- swelling (see 7.2.16; 7.2.86)
- swollen bite with no bleeding (see 8.2.18).
- swollen bite wound (see 5.2.1; 5.2.6; 5.2.7; 5.2.17).

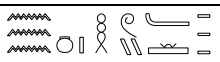
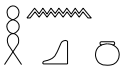
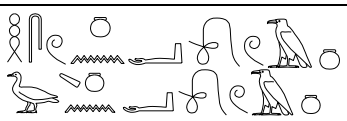
8.5.4 Emetics

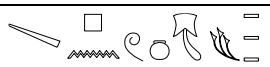
A large number of prescriptions in the *Brooklyn Papyrus* are for emetics (treatments to induce vomiting). An explanation can be found for this in Pinch (2006:141): it was a characteristic of ancient Egyptian medicine to find explanations in the supernatural realm for some aspects of illness such as fevers, headaches, stomach problems. These things were often thought to be caused by ‘demons, ghosts or hostile manifestations of deities’. It was believed that illness could be caused by certain bodily fluids of such entities. Emetics were, therefore, prescribed to the patient in order for the ‘intruder’ to be vomited out (Pinch 2006:141).

One must regard snake venom as a fluid that has entered the body. Aside from a bite wound, one cannot ‘see’ it once it is inside the body. One can only see symptoms related to an envenomed bite such as nausea, vomiting, diarrhoea, fever or ptosis. To the ancient Egyptians, this venom was an entity that must be removed from the body, and exorcism aside, vomiting seemed a logical way to achieve this. It is aptly expressed by Collier (2016:111): ‘The venom is thus treated as a force which needs to be combated, ultimately

with the aim of forcing its ejection from the body'. Table 15 below indicates the large volume of emetic preparations that were included in the *Brooklyn Papyrus* treatments.

Table 15: Ingredients used in emetic preparations in the *Brooklyn Papyrus*.

Egyptian name	Hieroglyphics	Latin / English name	Paragraph number	Part of plant / animal used
ꜣᶜᶜm dšrt		unidentified plant	77a	
jrṯt ᶜnḫt		goat	69	milk
ꜣᶜm		unidentified plant	51e	
ᶜfꜣ		*Lactuca virosa* / wild lettuce (or *Melilotus officinalis* / sweet clover)	47d	
ᶜnḫ-jmj		*Vitex agnus castus* / chaste tree	47d	berries
bjt		honey	59, 69, 70, 75a, 75b, 84	
bnr		*Phoenix dactilifera* / dates	85a	
fqꜣw		cake	59	
mjst n ḥnn		deer / gazelle	48a	dried liver
mw n šbt		*Hordeum vulgare* / barley	48b	liquid of barley mash
mw ḥwj		rainwater	84	
ḥmꜣt mḥt		salt of the north (delta)	45a, 45c, 46b, 59, 65a, 73, 75a, 75b, 84	
ḥnqt		beer	45a, 45c, 65a, 65b,70, 85c	
ḥnqt nḏmt		sweet beer	45b, 46b, 49b, 57, 59, 73, 75a, 77a	
ḥsꜣ n ᶜwꜣyt	 (variant)	mucilage of fermentation	50a, 51d, 75b	

Egyptian name	Hieroglyphics	Latin / English name	Paragraph number	Part of plant / animal used
ḥᶜs		mucilage	45c, 73	
ḥḏw		*Allium cepa* / onion	45a, 45c, 46b, 47a, 48b, 50a, 57, 59, 65b, 73, 75a, 75b, 77b, 82a	
ḫtn		*Allium sativum* / garlic	75b	
sᶜm		*Artemisia herba alba* / white wormwood	49b, 51e, 73, 75b	
snf ᶜnḫt nḏst		young goat's blood	70	
sd pnw		*Althaea officinalis* / marshmallow	47d	
šɜšɜ		*Valeriana officinalis* / valerian	59, 75a	
qbw		unidentified plant	70, 75b	
twn		unidentified plant	59	
twt ḥr		'image of Horus' plant unidentified	65a	
twt stš		'image of Seth' plant unidentified	65b	
tpnn		*Cuminum cyminum* / cumin	59, 75a	
trt		*Salix safsaf* / Egyptian willow	46b 75b 65b	leaves heart (core) unspecified
tḥwy		*Pisum sativum* / pea	45b, 50a	
ṯɜmṯɜm		unidentified plant	75b	
ṯɜtj		unidentified plant	75b	

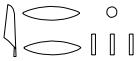
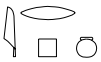
As one can see in the above table, onion is the most frequently used ingredient in emetic preparations, followed by salt. Honey appears quite often but this may have been used to make the mixture more palatable. Beer and sweet beer are almost standard in the *Brooklyn Papyrus* as the liquid of choice for emetics. Goat milk, liquid of barley mash, rainwater and blood of a young goat are each used once. Mucilage of fermentation is used three times, and wine is never used. White wormwood (*Artemeisa herba alba*) is used in four emetic

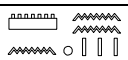
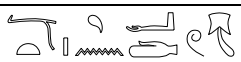
treatments, and never appears in treatments intended to remain in the patient. It is interesting to note that an unsavoury ingredient such as excrement is not used in emetic treatments, but rather in the treatments to be ingested!

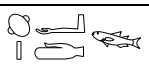
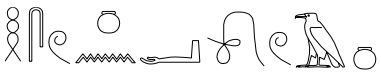
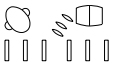
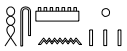
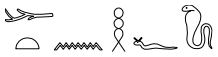
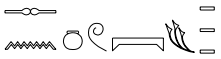
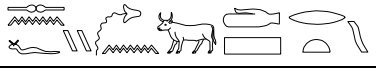
8.5.5 Treatments to be ingested

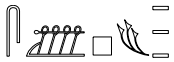
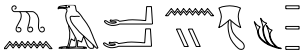
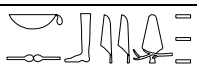
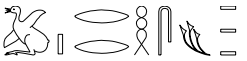
Just as many treatments are intended for ingestion as there are emetics. In fact, 33 treatments require ingestion of the mixture, while 25 are emetics. One specific remedy is given to the patient to tell if he / she would live or die. If the mixture remains in the patient then it is considered to be a sign that he will live. If, however, he vomits up the medication then it is a sign that he will die. Table 16 below indicates the ingredients that are intended for ingestion:

Table 16: Ingredients for ingestion in the Brooklyn Papyrus treatments

Egyptian name	Hieroglyphics	Latin / English name	Paragraph number	Part of plant / animal used
ꜣhm		unidentified plant	96a	
jꜣrrt		*Vitis vinifera* / common grape vine – grapes	71a	grapes
jbnw		alum	72c	
jbḥw (*n ʿdw*)		grey mullet	85d	teeth
jmꜣ		*Maerua crassifolia* / meru tree	46a	
jnjw		unidentified plant	46e 54a	fruit or seeds
jnnk		*Erigeron aegyptiacus* / conyza; *Thymus vulgaris* / thyme; *Mentha acquatica* / water mint	78b	
jrp		*Vitis vinifera* / common grape vine	43c, 46a, 46e, 46f, 46j, 47b, 47c, 47d, 54d, 65c, 68, 78b, 96a	wine
jrtj		*Seratonia siliqua* / carob tree pod	71a	pod

Egyptian name	Hieroglyphics	Latin / English name	Paragraph number	Part of plant / animal used
jsw		reeds	71a	
ꜥb n hnn		deer / gazelle	85d	horn
ꜥmꜥ		various grains	46e	grains
ꜥnḫ-jmj		*Vitex agnus castus* / chaste tree	54h	berries
wfꜣ n ḫmt		cow	72b	lung
wdd n ꜥnḫt		goat	46e, 46g	gall
wdd n ꜥnḫt dšrt		goat (red)	46a	gall
wdd n ḫmt dšrt		cow (red)	47c	gall
bꜣq		*Moringa oleifera* / moringa, drumstick tree, benoil tree, benzoil tree (oil)	54b	
bjt		honey	43a, 54c, 54h, 72b, 82c	
bddw-kꜣ		*Citrullus vulgaris*, *Citrullus lanatus* / watermelon, African melon	46k, 71a	
pꜣ-wr		vinegar	72b	grapes
mjmj		*Triticum turgidum*, *Triticum dicoccum* / emmer wheat	71a	
mjst n hnn		deer / gazelle	47b	liver
mw		water	40, 46g, 47a, 51d, 54a, 54e, 54f, 54g, 67, 71a, 72c	
mw qbw		water (fresh)	72c	
mn qmyt		unidentified plant	46a, 46e	resin / gum
mnnn		bitumen / resin	67	
ns n ꜥdw		grey mullet	85d	tongue

Egyptian name	Hieroglyphics	Latin / English name	Paragraph number	Part of plant / animal used
nḥḥ		*Sesamum indicum* oil / sesame oil	91a	seeds to obtain oil
ḥɜty n hnn		deer / gazelle	54d	heart
ḥmɜt mḥt		salt of the north (delta)	72b	
ḥnqt		beer	46a, 46e, 46g, 65c	
ḥnqt nḏmt		sweet beer	43a, 54h, 72b, 90a	
ḥs ꜥḏw		grey mullet	54d	excrement
ḥs n fktj jwnw		shorn priest of Heliopolis	54f	excrement
ḥs n ḫmt kmt		cow (black)	54e	excrement
ḥs n ḫmt dšrt		cow (red)	47a, 54d	excrement
ḥsɜ n ꜥwɜyt	 (variant)	mucilage of fermentation	72b, 85d	
ḥsbw jt		roughly crushed (grains) of barley	60, 85d	
ḥsmn		natron	46g	
ḥḏw		*Allium cepa* / onion	46a, 46c, 46k, 54f, 68	
ḫt n ḥfɜw		*unidentified* / 'wood-of-the-snake'	43c, 46c	roots
sɜ-wr		hydrous iron sulphate / melanterite?	43a	
sm ?		unidentified	46g	
snw pt		*Nymphaea caerulea* / blue lotus? *Sinapis sp.*/ wild mustard?	67	
snf n hnn		deer / gazelle	91c	blood
snf n ḫmt dšrt		cow (red)	91b	blood
snṯr wɜḏ		*Pistacia sp.* resin / terebinth, turpentine tree resin	96a	sap (fresh)

Egyptian name	Hieroglyphics	Latin / English name	Paragraph number	Part of plant / animal used
sšpt		*Cucumis melo* / chate melon	67	
sd pnw		*Althaea officinalis* / marshmallow	46a, 46f, 46j, 47c, 54d, 54f 51d, 54g	root
šɜms		*Anacyclus pyrethrum* / pellitory?	54b	
šɜšɜ		*Valeriana officinalis* / valerian	71a	
šɜkr		amber?	68	
šnj ɜᶜᶜnj		*unidentified* / 'hair-of-the-baboon'	43a	
qɜdy		*Agama flavimaculata* /blue desert lizard?	40	
qbw		unidentified plant	46a, 54e 46j, 54d	seeds
qmyt		various	71a	resin / gum
ksby		*Vanchellia* (*Acacia tortilis*) / umbrella thorn acacia	46g	wood
t jjw jt		*Hordeum vulgare* / barley	46a	grain for bread
twn		unidentified plant	82c	
tpnn		*Cuminum cyminum* / cumin	43a	
trt		*Salix safsaf* / Egyptian willow	46e	charcoal
ṯɜrrḥs		unidentified plant	46a	
djɜs		*Peganum harmala* / wild rue	40	
ḏɜᶜ		*Lathyrus sativus* / vetch	65c	

The faithful onion is only used four times in treatments for ingestion. Clearly it was much more popular in emetics to fight the unseen enemy! Honey is used four times and the unidentified *qbw* plant is used five times. The most frequently ingested ingredient is the 'tail-

of-the-mouse' plant, or marshmallow plant (*Althaea officinalis*), which appears in eight of these treatments. Four treatments require excrement (grey mullet, red cow, black cow and a priest). The rest of the ingredients each appear once, occasionally twice, in a treatment.

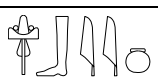
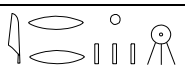
Wine is not used in emetics, but it appears frequently as a carrier liquid in treatments to be ingested. Water appears just as frequently. Beer appears four times as a carrier liquid and, unlike emetic treatments, is only ever suggested as an alternative to wine or water. Conversely, sweet beer can be used as a carrier liquid in treatments to be ingested and appears four times. Moringa oil and honey each appear once as the possible vehicle for swallowing a plant medication. In the case where a healer is not immediately at hand, the patient may drink sesame oil, cow's blood or deer / gazelle's blood. These are drunk neat, with no other ingredients as additives.

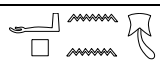
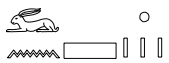
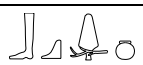
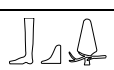
8.5.6 Wound and body treatments

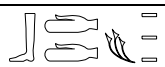
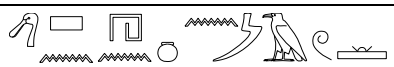
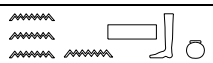
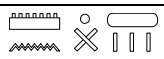
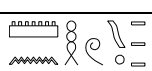
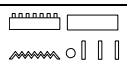
A large proportion of the *Brooklyn Papyrus* treatments are intended for use on the bite wound, which can then be covered with a bandage. It appears that the ancient Egyptian healer realised that pus, if present, must be removed from the body of the patient, and that this would enable a wound to close and heal up (Estes 2004:64). The opinion of Estes is supported by Forshaw (2016:125), who says that the ancient Egyptians did 'recognise the concept of infection' as they used words to describe the symptoms of infection such as *srf* (heat, temperature), *dšr* (redness) and *šf* (swelling). We have seen the words *srf* and *šf* used several times in the treatment section of the *Brooklyn Papyrus*.

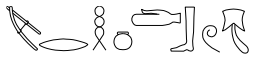
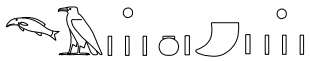
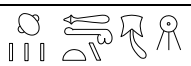
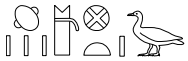
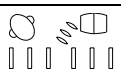
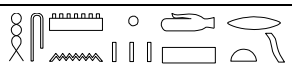
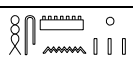
In addition to wound treatments, a few treatments are prepared and used to cover the body or limbs of the patient, not just the bite wound. Ingredients used in wound and body treatments are given in Table 17 below.

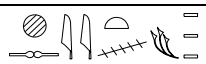
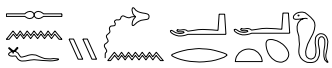
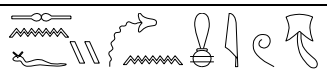
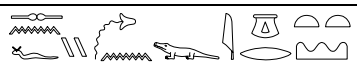
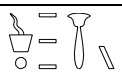
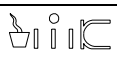
Table 17: Ingredients used in wound and body treatments in the *Brooklyn Papyrus*

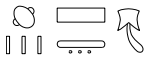
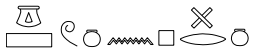
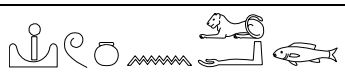
Egyptian name	Hieroglyphics	Latin / English name	Paragraph number	Form
ꜣby		*Aby* liquid – unidentified ingredient	62c	
jꜣrrt šw		*Vitis vinifera* / common grape vine	61a	dried grape stalks

Egyptian name	Hieroglyphics	Latin / English name	Paragraph number	Form
jbw		unidentified ingredient	92, 95b	seeds
jbnw		alum	48c, 49a, 51b, 51c, 61b	
jbs		unidentified plant	47f 87a	leaves
jmɜ		*Maerua crassifolia* / meru tree	72d 87a	powdered form leaves
jt		*Hordeum vulgare* / barley	45d, 86 76, 94	 flour
ꜥɜg(t) nt(j) ꜥɜt		donkey	44c	hoof
ɜpnn		newt	85a	whole body
ꜥfɜ		*Lactuca virosa* / wild lettuce (or *Melilotus officinalis* / sweet clover)	86, 93b	
ꜥmꜥꜥ n jt		*Hordeum vulgare)* / barley	45d	grains
ꜥntyw šw		*Commiphora myrrha* / myrrh	61b, 88a	resin (dried)
ꜥḳw js		old loaves	60	
ꜥḏ		uncertain (possibly cow)	76	fat
ꜥḏ n ꜥnḫt dšrt		goat (red)	58	fat
ꜥḏ n ḫmt		cow	47e, 64a, 94	fat
ꜥḏ n ḫmt wɜḏ		cow	62c	fat (fresh)
ꜥḏ n jɜt kɜ(?)		bull (?)	72c	fat from the back
wnš		*Vitis vinifera* / common grape vine	60, 66a	raisins
wšbt		*oushebet* mineral	51b, 58	
wt tn wɜt		unidentified plant	82b	
bɜq		*Moringa oleifera* / *Moringa peregrina*/ moringa, drumstick tree, benoil tree, benzoil tree	43c, 44c, 46d, 95b	seeds to obtain oil
bɜq		*Moringa oleifera* / *Moringa peregrina*/ moringa, drumstick	56b	nut (seed)

Egyptian name	Hieroglyphics	Latin / English name	Paragraph number	Form
		tree, benoil tree, benzoil tree		
bꜣq n nꜣwj		*Moringa oleifera* / *Moringa peregrina*/ moringa, drumstick tree, benoil tree, benzoil tree	88a	Seeds to obtain oil (fresh)
bjt		honey	46h, 47f, 49a, 60, 63a, 63b, 66b, 74b, 76, 77c, 93b, 94	
btj (*bdt*)		*Triticum turgidum*, *Triticum dicoccum* / emmer wheat	45d	
bddw-kꜣ		*Citrullus vulgaris*, *Citrullus lanatus* / watermelon, African melon	50b, 51c, 77c, 95c	
pꜣ-wr		vinegar	56b	
pꜣqyt n(jt) ḥnw n(j) mꜣw		new pot	78a, 87b	fragment
pwrḫjt (*pḫt?*) *ꜥꜣ*		unidentified plant	61a	
pds		unknown	92	
fqꜣw n(j) ꜥwꜣyt		cakes of fermentation	45e	
fdt		sweat	95a	
mjmj		*Triticum turgidum*, *Triticum dicoccum* / emmer wheat	83	
mw		water	93a, 93b	
mw n šbt		*Hordeum vulgare* / barley	46i	liquid of barley mash
mn qmyt		unidentified resin (*men* resin)	51c	resin
mnt		unidentified resin (*menet* resin)	88a	resin
mnḫw		beeswax	47g, 51b, 62b, 62c	
mnšt		red ochre	49a, 72b, 74b, 79a, 88b	

Egyptian name	Hieroglyphics	Latin / English name	Paragraph number	Form
mrḥt		goose	66b	fat
mrḥt dbw		hippopotamus	78a	fat
mḥy		*Linum usitatissimum* / flax, linseed	46d	
nbs		*Ziziphus spina Christi* / jujube, Christ thorn	leaves	87a
nḥḥ		*Sesamum indicum* / sesame	47g, 50b, 51a, 52, 53, 62c	oil
rḫtj		Fuller's earth	83 85a	lees ointment
rd n nrt		vulture	95a	foot
rdnw		*Papaver somniferum* / opium poppy	61b	laudanum (tincture of opium)
ḫɜw nw ḥmt		copper filings	51c	
ḥmɜt		salt	48c, 72a	
ḥmɜt mḥt		salt of the north (delta)	45d, 46d, 51a, 51b, 52, 61b, 62b, 66b, 72b, 76, 81, 86, 94	
ḫnqt nḏmt		sweet beer	93a	
ḫs ꜥɜt		donkey	87b	droppings dried
ḫs ꜥff		fly excrement	79a, 88b	
ḫs n(j) kɜ		bull	46h	droppings
ḫs ḥnt		pelican	66a	droppings
hꜥs		mucilage / fermented liquid	45d, 56a	
ḫsbw jt		roughly crushed (grains) of barley	60	fragments
ḫsɜ ꜥwɜyt		mucilage of fermentation	89	
ḫsɜ ṯɜy		male mucilage	55	cover head
ḫsmn dšrt		red natron	81	mixed in lees of vinegar
ḫsmn		natron	53, 58, 61a, 72a	

Egyptian name	Hieroglyphics	Latin / English name	Paragraph number	Form
ḥsmn n(j) sḫt		natron of the oasis	61b	
ḥḏw		*Allium cepa* / onion	45d, 46h, 47g, 48c, 51c, 77c, 95c	
ḫɜsjt		*Bryonia dioica* / bryony	58	
ḫt n(j) ḫfɜw		*Unknown* / 'wood-of-the-snake'	43c	twigs
ḫntt snṯr		*Pistacia sp.* / terebinth, turpentine tree	85b	*khentet?*
sɜ-wr		hydrous iron sulphate / melanterite?	92	
sjn ṯɜy		male clay	55 63b	cover head lees-bandage
sʿm		*Artemisia herba alba* / white wormwood	48c	
swḫt n njw		ostrich	88a	eggs
sft		*Abies cilicica* / Cilician fir oil	62c, 78a	
smj		curds	62b, 62c, 72b	
smj wɜḏ		curds (fresh)	47e	
smw rdj.f m hɜwj hbnt		'plant which grows in the vicinity of Hibis'. unidentified	66a	
snf n ʿrʿt		cobra	81, 90c	blood
snf n ʿdw		grey mullet	90c	blood
snf n mjw		cat	90c	blood
snf n dpy jgrt		*Laudakia stellio* / starred agama?	90c	blood
snf n ḏryt		kite	90c	blood
snṯr		*Pistacia sp.* / terebinth, turpentine tree	47g, 50b, 60, 61a	
snṯr wɜḏ		*Pistacia sp.* resin / terebinth, turpentine tree resin	61b, 62c, 64a, 66b	sap (fresh)
snṯr pḫɜ		*Pistacia sp.* resin / terebinth, turpentine tree resin	51b, 81	sap (ground)

Egyptian name	Hieroglyphics	Latin / English name	Paragraph number	Form
snṯr šw		*Pistacia sp.* resin / terebinth, turpentine tree resin	60, 87b	sap (dried)
štj		yellow ochre	87b 47g	crushed finely
šɜkr		amber?	90c	crushed finely
šʿy dšrt		sand of the desert	44a	
šbt		*Cucumis melo* / melon	55	cover head
šfšft		mud?	87b	
šnḏt		*Vachellia nilotica* (*Acacia nilotica*) / Nile acacia, Egyptian thorn tree	46h, 87a, 96b	leaves
ḥs štw		tortoise	89	excrement
qmyt		various	87b	resin / gum
qrqr		unidentified plant parts (galls?)	66a	grows on the sycamore
ksby		*Vachellia tortilis (Acacia tortilis*) / umbrella thorn acacia	46g	wood
gɜš pɜ-wr		vinegar	48c, 81	lees
trt		*Salix safsaf* / Egyptian willow	63a	twigs
tḥwy		*Pisum sativum* / pea	45d, 45e, 92 56a	seeds not specified
djdj		Nubian red ochre	crushed in terebinth	60
dɜbw		*Ficus carica* / fig	60, 61b	fruit
dḥr n(j) štw		tortoise	78a	hide
dgm		*Ricinus communis* / castor oil plant	44b, 72d 45d 62a	leaves seeds
ḏɜjs		*Peganum harmala* / wild rue	76, 94 86	seeds
ḏɜrt		*Seratonia siliqua* / carob tree	58,63a, 63b, 76, 86, 94	pod
ḏw (?) n(j) šnʿ		*chena* fish	51b	brine (?)

In Table 17 above, the greatest variety of ingredients used in the various *Brooklyn Papyrus* treatments is to be found. Poultices, ointments and whole-body treatments are made from these ingredients.

The most frequently used ingredient for wound healing is salt of the north (13 prescriptions) and salt (two prescriptions), with natron (Na2CO3, a chemical salt frequently used in embalming) appearing in five treatments. Another mineral ingredient, alum, (usually potassium aluminium sulphate, ammonium aluminium sulphate or sodium aluminium sulphate) is also used in five of the treatments.

The most commonly used plant ingredients for wound healing are sap and resin (fresh, dried or ground) from the terebinth, or turpentine, plant (*Pistacia lentiscus*), which is found in 12 treatments. The next most frequently used plant ingredient is the onion, which appears in six of the mixtures.

Honey, a known natural anti-bacterial is also fairly widely used, being incorporated into 12 treatments. Aside from honey, the most frequently applied animal product is fat (from cattle or goats) and it is required in seven treatments. Curds are a milk by-product that are used in four of the wound treatments.

Red ochre and sesame oil are called upon in five treatments each. The following plant products each appear in four of the mixtures: castor oil / ricin plant (*Ricinis communis*), barley (*Hordeum vulgare*), moringa oil (*Moringa oleifera*), peas (*Pisum sativum*), and watermelon or African melon (*Citrullus vulgaris, Citrullus lanatus*). Many of the wound treatments call for the mixture to be heated to the temperature of a finger – a temperature that is neither to hot nor too cold, and the ointments or poultices are often kept in place under a bandage.

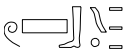
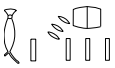
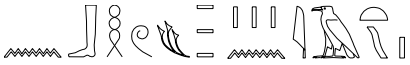
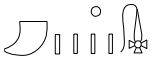
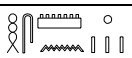
The art of bandaging was highly developed at a very early date, according to Vogelsang-Eastwood (2000:294) and raw flax[255] could be used as a swab directly on the wound to absorb blood or pus.

[255] Two types of flax were grown in ancient Egypt from pre-Dynastic times, namely *Linum bienne* and *Linum usitatissum.* The latter was more commonly used (Vogelsang-Eastwood 2000:271).

8.5.7 Fumigations

The instruction to fumigate is given as  (*kɜp*). Fumigation was a method of administering treatment and a handful of recipes among the *Brooklyn Papyrus* treatments that are specifically for making fumigations for the patient. Ingredients used in fumigation treatments are seen in Table 18 below.

Table 18: Ingredients used for fumigation treatments in the *Brooklyn Papyrus*

Egyptian name	Hieroglyphics	Latin / English name	Paragraph number	Form
jmɜ		*Maerua crassifolia* / meru tree	64b	powdered
ʿntyw šw		*Commiphora myrrha* / myrrh	64b	dried
wšbt		*Oushebet* mineral	64b	
bnw		*Phoenix dactilifera* / date palm	100	dried dates
nbḥ n jɜt		unidentified	100	not specified
ḥmt srft		copper (heated)	64b	
ḥsmn		natron	64b, 100	
sɜ-wr		hydrous iron suphate / melanterite	64b	
t m prš		loaf of minimum /red earth?	64b	
ḏɜrt		*Seratonia siliqua* / carob tree pod	64b 100	powdered form not specified

It is interesting to note in Table 18 above that no ingredient is used on a regular basis for fumigation treatments. Each ingredient only appears once, with the exception of carob pods and natron, which each appear in two recipes.

8.5.8 Snake repellents

Paragraph 42a (see 7.2.4) gives a recipe for a snake repellent to be used on one's body to keep snakes at bay. Paragraph 42b (see 7.2.5) is a snake repellent recipe that one sprinkles around the entire house at New Year in order to keep snakes out. One may wonder why the repellent must be used specifically at New Year. However, the start of the annual inundation

of the Nile began at New Year, and it may well be that the rising waters forced various creatures, including snakes, to move away from their usual habitats and closer to the houses.

8.5.9 Specific treatments

A number of the treatments in the *Brooklyn Papyrus* had very specific uses. A treatment could be for the bite of a particular snake, or it could be given to the patient to treat a specific symptom.

8.5.9.1 Treatments for specific snakes

Some of the treatments are intended for treating the bites of specific snakes. The rest of the treatments are for the bite of any kind of snake. The treatments for the bites of specific snakes are as follows:

- Paragraphs 45a to 45e: neki snake (see 5.2.12; 7.2.13 to 7.2.17).
- Paragraphs 46a to 46k: sekhtef snake (see 7.2.18 to 7.2.28).
- Paragraph 47a: neki snake (see 5.2.12; 7.2.29).
- Paragraphs 47b to 47g: qady snake (see 7.2.30 to 7.2.35).
- Paragraphs 48a to 48c: sedeb or mesou-bedesh snakes (see 5.2.7; 7.2.36 to 7.2.38).
- Paragraphs 49a to 49b: garousha snake (see 7.2.39 to 7.2.40).
- Paragraphs 50a to 50b: sekhtef and mady snakes (see 7.2.41 to 7.2.42).
- Paragraphs 51a to 51e: ti-am snake (see 5.2.9; 7.2.32 to 7.2.47).
- Paragraph 52: sedeb snake (see 5.2.7; 7.2.48).
- Paragraph 53: ro-bedjadja snake (see 5.2.22; 7.2.49).
- Paragraphs 54a to 54h: heby snake (see 7.2.50 to 7.2.57).
- Paragraph 57: ka-nay snake (see 7.2.61).
- Paragraphs 65a to 65c: large viper (see 7.2.74 to 7.2.76).
- Paragraph 68: viper, or any snake (7.2.80).
- Paragraph 70: female viper, or any snake (see 7.2.82).
- Paragraph 73: puff adder (see 5.2.14; 7.2.90).
- Paragraphs 74a to 74b: any viper (see 7.2.91 to 7.2.92).
- Paragraphs 75a to 75b: horned viper (see 5.2.15; 7.2.93 to 7.2.94).
- Paragraphs 77a to 77c: small snakes (see 7.2.96 to 7.2.98).
- Paragraphs 78a to 78b: henep snake (see 5.2.10; 7.2.99 to 7.2.100).

- Paragraphs 80a to 80c: red henep snake (see 5.2.11; 7.2.104 to 7.2.106).
- Paragraph 81: male snake (see 7.2.107).
- Paragraph 82a: cobra (see 7.2.108 to 7.2.110).

Some of the snakes listed above do not appear in the descriptions of snakes in the *Brooklyn Papyrus* from Paragraph 14 onwards. These are sekhtef, qady, mesou-bedech, garousha, mady, heby and ka-nay. It is, therefore, highly possible that they may be seven of the snakes appearing in the missing first 13 paragraphs of the *Brooklyn Papyrus*.

8.5.9.2 Treatments for specific conditions related to snakebite

A number of the *Brooklyn Papyrus* treatments name the exact condition or symptom they are prescribed for – other than 'chasing out venom'. These treatments appear in the following paragraphs:

- Paragraph 40: treatment to tell if the patient will live or die (see 7.2.2).
- Paragraph 43c: treatment to elevate the heart rate, ease breathing, and drive out epilepsy (see 7.2.9).
- Paragraph 45d: wound treatment to drive out swelling (see 7.2.26).
- Paragraph 46c: treatment to enable breathing (see 7.2.20).
- Paragraph 46d: possibly intended to ease breathing as treatment is placed on the throat (see 7.2.21).
- Paragraph 51b: treatment for a deep wound (see 7.2.44).
- Paragraph 55: treatment for venom that 'takes hold of the head' (delirium?) (see 7.2.58).
- Paragraph 63a: treatment for a deep wound (see 7.2.70).
- Paragraph 64a: wound treatment for proud flesh (see 7.2.72).
- Paragraph 64b: wound treatment for proud flesh (see 7.2.73).
- Paragraph 66a: treatment to 'remove sweat' (see 7.2.77).
- Paragraph 67: treatment for venom in the eye (see 7.2.79).
- Paragraph 69: treatment to 'open the throat' (ease breathing) (see 7.2.81).
- Paragraph 71b: wound treatment for pain relief (see 7.2.84).
- Paragraphs 72a to 72d: wound treatments to eliminate swelling (see 7.2.86 to 7.2.89).
- Paragraph 76: treatment to eliminate unconsciousness in the patient (see 7.2.95).

- Paragraph 78b: tonic to restore strength (see 7.2.100).
- Paragraphs 79a to 79c: wound treatments to stop bleeding (see 7.2.101 to 7.2.103).
- Paragraph 80b: massage (see 7.2.105).
- Paragraph 83: treatment to eliminate pain and sickness (see 7.2.111).
- Paragraph 84: treatment to cause the patient to spit (see 7.2.112).
- Paragraphs 85a to 85d: treatments to remove fang broken off in the wound (see 7.2.113 to 7.2.116).
- Paragraph 86: treatment to halt trembling (see 7.2.117).
- Paragraph 87a: treatment for a narrow wound (see 7.2.118).
- Paragraphs 88a to 88b: wound treatments to stop bleeding (see 7.2.120 to 7.2.121).
- Paragraph 90a: tonic to restore health (see 7.2.123).
- Paragraphs 91a to 91c: treatments to use in the absence of a healer (see 7.2.126 to 7.2.128).
- Paragraph 92: treatment to eliminate weakness, diarrhoea, confusion and blindness (see 7.2.129).
- Paragraph 94: body treatment to eliminate non-reactiveness (see 7.2.132).
- Paragraph 96a: treatment to eliminate unconsciousness (see 7.2.136).
- Paragraph 98a: treatment to eliminate sweating (7.2.142).

8.5.10 Successive and concurrent treatments

While many treatments in the *Brooklyn Papyrus* provide alternatives for each other, it is made very clear that some treatments are successive or concurrent.

8.5.10.1 Successive treatments

The following treatments are successive treatments. In other words, one treatment is followed by another.

- Paragraph 44a is a poultice which must be replaced by another wound treatment given in 44b after a specified number of days, to be followed by yet another wound dressing in 44c. (See 7.2.10 to 7.2.12).
- Paragraph 46 contains a mixture of alternative, successive and concurrent treatments. Paragraph 46a is an ingestible treatment, followed by an emetic in 46b then a chewable treatment in 46c, after which a lamp wick, moistened with a treatment, is

placed on the patient's throat, as instructed in Paragraph 46d. This is followed by another ingestible treatment from Paragraph 46e, f or g (alternative treatments). A wound treatment from Paragraph 46h or 46i must be concurrent with all of this, and it is followed by one last ingestible treatment from Paragraph 46k. (See 7.2.18 to 7.2.28).

- Paragraph 47a is an emetic treatment followed by an ingestible treatment from Paragraph 47b or 47c. This is followed by another emetic from Paragraph 47d. (See 7.2.29 to 7.2.32).
- Paragraph 51e is an emetic treatment following on from the concurrent wound and ingestible treatments in Paragraphs 51a to 51d. (See 7.2.43 to 7.2.47).
- Paragraphs 65a and 65b contain alternative emetic treatments to be followed by an ingestible treatment from Paragraph 65c. (See 7.2.74 to 7.2.76).
- Paragraph 71a (treatment to be ingested) followed by 71b (a poultice to drive out pain) followed by 71c (a wound dressing). (See 7.2.83 to 7.2.84).
- Paragraph 72a (wound treatment for swelling) followed by 72b (treatment to be ingested and a wound treatment) followed by 72c (wound treatment for swelling) followed by 72d (another wound treatment and fumigation). (See 7.2.86 to 7.2.89).
- Paragraph 78a (a wound dressing) followed by 78b (a tonic to recover strength). (See 7.2.99 to 7.2.100).
- Paragraphs 85a to 85d (a succession of actions to remove the fang which has broken off in the bite wound). (See 7.2.113 to 7.2.116).

8.5.10.2 Concurrent treatments

- The following treatments must be carried out at the same time:
- Paragraph 41 contains an emetic treatment and a lengthy recitation to be pronounced over the patient. (See 7.2.3).
- Paragraph 43a is an ingestible treatment and Paragraph 43b is the recitation to be pronounced over the patient. Paragraph 43c provides an alternative ingestible treatment along with a treatment to be used on the body of the patient to elevate the heart rate, enable breathing and drive out epilepsy. (See 7.2. to 7.2.9).
- Paragraphs 45a, b and c are alternative emetic treatments. The emetic is given in conjunction with the wound treatment to drive out swelling in Paragraph 45d. An

alternative treatment to Paragraph 45d is 45e which contains a wound treatment and fumigation. (See 7.2.13 to 7.2.17).

- Paragraphs 46h and 46i provide wound a wound treatment to be used along with the other treatments specified in Paragraphs 46a to 46g, and Paragraphs 46j or 46k. (See 7.2.18 to 7.2.28).
- Paragraphs 47e and 47f are wound treatments to be used concurrently with emetic and ingestible treatments given in Paragraphs 47a to 47d. Fumigation (paragraph 47g) runs concurrently with these treatments. (See 7.2.29 to 7.2.35).
- Paragraphs 48a and 48b are emetics to be used along with a wound treatment in Paragraph 48c. (See 7.2.36 to 7.2.38).
- Paragraphs 49a and 49b contain emetic and wound treatments respectively. (See 7.2.39 to 7.2.40).
- Paragraph 50a is an emetic given along with and external body treatment from Paragraph 50b. (See 7.2.41 to 7.2.42).
- The treatments in 51a, b and c are all alternative wound treatments to be given along with and ingestible treatment from Paragraph 51d. (See 7.2.43 to 7.2.36).
- A wound treatment in Paragraph 64a is used along with fumigation from Paragraph 64b. (See 7.2.72).
- Paragraph 66a contains a wound treatment and Paragraph 66b is a treatment to be used on the patient's body. (See 7.2.77 to 7.2.78).
- An ingestible treatment is given in Paragraph 71a, to be used along with the poultice given in Paragraph 71b, alternatively the wound dressing in Paragraph 71c. See 7.2.83 to 7.2.85).
- Paragraph 72a is a wound treatment, to be given along with treatments to be drunk and eaten in Paragraph 72b. An external body treatment is provided in Paragraph 72c. An alternative wound dressing is given in Paragraph 72d. (See 7.2.86 to 7.2.89).
- Paragraphs 77a and b provide alternative emetic treatments to be used along with an external body treatment provided for in Paragraph 77c. (See 7.2.96 to 7.2.98).
- Paragraph 78a is a wound treatment to be used along with an ingestible treatment in Paragraph 78b. (See 7.2.99 to 7.2.100).
- The wound treatment of Paragraph 79a is given along with a lengthy recitation in Paragraph 79b. (See 7.2.101 to 7.2.102).

- Paragraph 80a gives instructions for a wound treatment and fumigation. A recitation, provided in Paragraph 80b, is given over the remedy and instructions for a massage appear in Paragraph 80c. (See 7.2.104 to 7.2.106).
- The treatment in Paragraph 82a is an emetic to be used in conjunction with a wound treatment and fumigation. (See 7.2.108).
- The treatment in Paragraph 90a is an ingestible one, over which a recitation is pronounced from Paragraph 90b. A wound treatment is given in Paragraph 90c. (See 7.2.123 to 7.2.125).
- Paragraph 92 contains a treatment for a mixture to be rubbed onto the limbs of the patient while fumigating him or her. (See 7.2.129).
- A recitation and concurrent fumigation is given in Paragraph 97a. An alternative recitation and fumigation is provided in Paragraph 97b. (See 7.2.138 to 7.2.139).
- Paragraphs 98a and c both contain recitations and fumigation instructions. (See 7.2.142 to 7.2.144).
- A recitation, wound treatment and fumigation are given in Paragraph 99a. Paragraphs 99b and c are alternative treatments for 99a. (See 7.2.145 to 7.2.147).

8.5.11 Duration of treatments

The duration of the treatment is specified in the following paragraphs in the *Brooklyn Papyrus*:

- Paragraph 44a: the bandage must be kept moist for four days. Paragraph 44b: an additional wound treatment for another four days. Paragraph 44c: yet another wound dressing for four days. This is a series of wound dressings for four days each, making a total of 12 days of treatment for the bite wound. (See 7.2.10 to 7.2.12).
- Paragraphs 45a and 45b: alternative emetic treatments, each one runs for four days. Paragraph 45c: an emetic treatment for one day. Paragraph 45d: a wound treatment for four days. Paragraph 45e: a wound dressing and fumigation to last for seven days. (See 7.2.13 to 7.2.17).
- Paragraph 46a: an ingestible treatment for four days. Paragraph 46b: an emetic treatment for four days. (See 7.2.18 to 7.2.19).
- Paragraph 47a: an emetic treatment for two days. Paragraph 47b: an ingestible treatment for one day. Paragraph 47c: an ingestible treatment for one day. Paragraph

47e: a wound treatment for seven days. Paragraph 47f: an alternative wound treatment for four days. (See 7.2.29 to 7.2.34).

- Paragraph 57: an emetic treatment for four days. (See 7.2.61).
- Paragraph 58: a wound treatment for four days. (See 7.2.62).
- Paragraph 59: an emetic for four days. (See 7.2.63).
- Paragraph 61a: a wound treatment for four days. Paragraph 61b: an alternative wound treatment, also for four days. (See 7.2.65 to 7.2.66).
- Paragraph 62a: a wound treatment for one day. Paragraph 62b: another wound treatment for one day. Paragraph 62c: another wound treatment for eight days. The total duration of the wound treatments is 10 days. (See 7.2.67 to 7.2.69).
- Paragraph 63a: a wound treatment for four days. Paragraph 63b: another wound treatment for four days. (See 7.2.70 to 7.2.71).
- Paragraph 64b: fumigations for seven days. (See 7.2.73).
- Paragraph 71a: an ingestible treatment for four days. (See 7.2.83).
- Paragraph 72b: treatments to eat and drink for four days. (See 7.2.87).
- Paragraph 75b: an emetic treatment for four days. (See 7.2.94).

Most of these treatments have a duration of four days, whether they are for swallowing or for wounds. Interestingly, most oral treatments in the *Ebers Papyrus* were also for a duration of four days (Estes 2004:98).

8.5.12 Efficacy of treatments

It is clear from the *Brooklyn Papyrus* that treatment recipes are not only aimed at relief of symptoms but also at healing. This is evident from some of the bite wound recipes, where some of the ingredients used are known to help inhibit infection or inflammation, for example: honey, salt and natron.

Unfortunately, we have no knowledge of how successful any of these treatments may have been. Even in today's snakebite treatments in hospitals, there is no complete or instant cure for snakebite. Treatments can inhibit the destructive action of the venom and support the body in the healing process while the venom is being eliminated from the body. The same intention is apparent in the *Brooklyn Papyrus* treatments.

One cannot help but wonder if any of the treatments had some small measure of efficacy. Snakebite was a serious problem in ancient Egypt, so much so that it warranted a meticulously complied snake identification and treatment manual. The Priests of Serqet certainly believed in their treatments and this is evident from the following comments that are found in the treatment section of the Papyrus. Paragraph 41 says: *pḫrt nfr nfr jrt n dmt ḫr nbt* (a very good remedy to prepare for anyone who has been bitten). A comment that is repeated in paragraphs 48c, 56a, 79a, 93a and 95b is the phrase: *m šs mɜꜥt*, meaning 'it is truly excellent'. In paragraphs 46f, 54d, 70 and 78a, this phrase was extended to: *m šs mɜꜥt, ḥḥ n sp* (it is truly excellent, a million times). Another version of this is the comment: *m šs mɜꜥt, ḥḥ n sp, jw.s rs.tj* (it is truly excellent, a million times, it has been observed!) Yet another encouraging comment, certainly for the bite victim, is that of Paragraph 46g: *ꜥḥꜥ.f snb ḥrꜥ* (he will arise and recover immediately!) Similarly, Paragraph 90a says: *snb.f ḥr-ꜥwj* (he will heal immediately); and in Paragraphs 96a and 96b one finds: *mdt.f ḥr ꜥwj* (he will speak immediately). The comment in Paragraph 93b is *jrtjwj* which means 'both eyes'. It is almost certainly an abbreviation intended to mean 'the treatment has been witnessed [or observed]'. While these comments in the Papyrus certainly do not prove complete efficacy of the treatments, they do suggest that there were 'tried and tested' treatments that may have done some good.

8.5.12.1 Active principles in plants

Plants contain 'active principles', which are the chemical components that may provide a healing benefit (or toxic, depending on the quantity used). These active principles are released from the plants by soaking them in water, alcohol or oil. An active principle will work more effectively in one media than another. An active principle may be found in only one part of the plant, for example, the leaves or the bark or the root. The concentration of the active principle may be affected by the time of year or even by the time of day (Nunn 2002:151).

Nunn (2002:139) explains that many of the active principles in plants are alkaloids. The following chemicals are examples of alkaloids: nicotine, morphine, atropine and quinine. Alcohol is the most effective medium to extract an alkaloid from the plant. Wine and beer in the *Brooklyn Papyrus* are often used as carrier liquids for the other ingredients. According to Nunn (2002:140), it was likely that an alcohol content of 10 – 20 per cent was obtained in

wine and this would be enough to enable the extraction of alkaloids from the plant material in the treatment. Any alkaloids would then be released into the solution. Whether or not they provided any benefit in relieving the symptoms of snakebite is debatable.

8.5.12.2 Alum

Medicinally, alum has astringent properties when used as an external application. When ingested, alum acts as an antidiarrheal in low doses and as an emetic in high doses (Estes 2004:139). As an astringent, alum may have helped to dry out some wounds because it helps to control bleeding and secretions by contracting the mucous membranes and exposed or raw tissue[256].

8.5.12.3 Blood

Some treatments in the medical papyri call for the use of blood or fresh animal parts. According to Estes (2004:64), the use of fresh meat on a wound may have assisted blood clotting. The use of raw meat on wounds in order to stop bleeding is also commented on by Darby *et* al (1977:157). In the *Brooklyn Papyrus* recipes, blood is used in several wound treatments, including blood from a cobra, cat, grey mullet, kite and a lizard – possibly a starred agama.

8.5.12.4 Honey

Honey is discussed in 7.2.7.5. It is a very important ingredient with antifungal and anti-bacterial properties.

8.5.12.5 Mucilage

Mucilage is a protein-bearing gelatinous substance. It comes from the roots, shoots, leaves, stems, flowers or seeds of plants (Newman & Serpico 2000:476). According to van Wyk (2003:197), mucilage helps to prevent wounds drying out and has the added benefit of providing a barrier over the wound. In addition, some plant mucilages have antibacterial and antifungal properties and also act as an anti-inflammatory agent. Mucilage, which soothes the mucous membranes, is a product that is mentioned frequently in the *Brooklyn Papyrus* treatments. Its Egyptian name is *ḥsɜ*. In the *Brooklyn Papyrus* there are times when

[256] https://www.merriam-webster.com/dictionary/astringent#medicalDictionary (accessed online 7th August 2019.

‘mucilage’ is used and other times the treatments call for *ḥsꜣ n ʿwꜣyt* (mucilage of fermentation). One treatment specifies *ḥsꜣ ṯꜣy* (male mucilage).

A product called *fqꜣw n ʿwꜣyt* (cakes of fermentation) is used in the treatment in Paragraph 45e. While it is not clear what these ‘cakes of fermentation’ are exactly, one can imagine that perhaps they are cakes made from the sediment of the fermentation process. Nunn (2002:13) says that baked loaves were soaked in water, fermented and then strained. This residual liquid may be a source of *ḥsꜣ*, the fermented liquid that appears in the *Brooklyn Papyrus* recipe. The bread and this liquid would be been very good for the patient because, as Nunn (2002:13) explains, the yeast converted the grains into ‘nutritional components’.

8.5.12.6 Salt and natron

Both salt and natron are very useful to assist in combatting infection in wounds and helping to reduce swelling. Both substances have excellent osmotic properties and are able to draw fluids (Nunn 2002:145).

8.6 CONCLUSION

The ancient Egyptians had a definite treatment protocol for snakebites. Identification of the snake is important because treatment could hinge on this, in both the ancient Egyptian and the modern worlds. Just as we have specialist departments in hospitals today which treat victims of snakebite, so the ancient Egyptians had specialists who dealt with snakebite treatment, namely the Priests of Serqet.

That these healers recognised which bites were survivable and which had a favourable prognosis is in no doubt. The manual shows that it was clearly understood that certain snakebites caused certain reactions in the body. We have seen in the treatment section of the *Brooklyn Papyrus* how some treatments are for the bite of specific snakes, while others are for specific conditions related to effects of an envenomed bite. There are also numerous treatments for general use, irrespective of the variety of snake that has caused the bite, or symptoms. Many treatments require specific dosages and a wide variety of ingredients are used in the treatment recipes. Many prescriptions list the duration of treatment, and also specify if there are successive or concurrent treatments. Most of the prescriptions are fairly

consistent in their presentation format: a treatment for X (condition or snake), list of ingredients, preparation of medication, and method of use.

Some ingredients are used more frequently than others, and some ingredients only appear occasionally. Botanical ingredients of various kinds are more prevalent in the treatments than ingredients of animal or mineral origin. A number of these plants are associated with deities who were bringers of life such as the all-important solar deities, or even creator deities such as Khnum. Some of the plants are linked to resurrection through their association with Osiris, and yet other are connected to the deities of healing such as Isis, Thoth, Hathor and Horus. Some of the trees, whose parts are incorporated into the recipes, are important to the ancient Egyptians for their protective reputation. These are the *Maerua crassifolia* (*jmꜣ* [meru tree]), *Ziziphus spina Christi* (*nbs* [jujube]), the *Salix* species (*trt* [willow]), the *Vachellia nilotica* (*šnḏt* [*Acacia nilotica*, Nile acacia]) and the *Vacellia tortilis* (*ksbt* [*Acacia tortilis*, umbrella thorn acacia]).

It is clear that the choice of ingredients for the treatments is not random. While we cannot know the exact reasons for the selection of each particular ingredient, some of them may well be selected because of their association with certain powerful deities. Many of the botanical ingredients in particular have links to mythology and important deities.

Although incantations are at a minimum in this document, their inclusion shows the importance of the spoken word, whether a direct address to the venom or an appeal to important healing deities (or the onion, of course). Reference to certain myths in which a deity is healed or is triumphant is also apparent.

The tables in this chapter have assisted in answering questions about the ingredients used in snakebite treatment in ancient Egypt. Tables 8, 9, 10, 11 and 14 show what ingredients were used, and in what form they were used, while Tables 15 through to 18 show how these ingredients were used and applied.

CHAPTER NINE

CONCLUSION

9.1 A UNIQUE DOCUMENT

The *Brooklyn Papyrus* (47.218.48 and 48.218.85) is a copy based on an earlier original. The exact provenance of this document, which came into the hands of Charles Edwin Wilbour, is unfortunately unknown. Due to the generosity of his family, it was bequeathed to the Brooklyn Museum where it came to the attention of Serge Sauneron, the Egyptologist who conserved the papyrus and produced its first translation into French.

The *Brooklyn Papyrus* (47.218.48 and 48.218.85) is the only extant medical papyrus that is dedicated entirely to the identification of snakes and the treatment of their bites that we know of. As such, it provides insight into the medical world of the ancient Egyptians and shows that treatment of snakebites was a specialist discipline involving specialist healers, namely the Controllers, or Priests, of Serqet. Unlike some of the other medical papyri, the *Brooklyn Papyrus* has no commonality with any other medical papyrus as far as I know.

The translation of this Papyrus, along with inserting data into tables for easy reference and comparison, has made it possible to answer the questions that prompted this study. This methodology has made possible to know how the ancient Egyptians treated snakebites, and what medicinal products they incorporated into the treatments.

Additionally, the translation enables the discovery of what types of snakes they encountered and to understand their approaches to the identification of snakes, the effects of their bites and the treatment thereof. Unfortunately there is no record about the success of the treatments, or lack thereof, other than the comments in the recipes such as ‘it is truly excellent’ or ‘it has been observed’ or ‘he will heal immediately’.

9.2 SCIENTIFIC APPROACH TO SNAKE IDENTIFICATION AND SNAKEBITE TREATMENT

It is established from the translation of the Brooklyn Papyrus that the ancient Egyptians had a scientific approach to the identification of snakes that they encountered, as well as to the treatment of their bites.

This scientific approach is clear on examination of the first part of the document, which shows that the healers understood the importance of correct identification of the snake that caused the bite; as well as in the second part of the papyrus in which treatments and prescriptions are laid out clearly and in a consistent fashion.

In addition, the translation of the *Brooklyn Papyrus* shows that the discipline of snakebite treatment in ancient Egypt had a three-pronged approach, one of which was scientific in nature, while the other two approaches were holistic and magical.

9.2.1 Identification of snakes and the effect of their bites

The translation of the first part of the Brooklyn Papyrus, dealing with the description of the snakes and the effects of their bites, shows that one can indeed attempt to identify the species of snakes that were encountered by the ancient Egyptians.

Without a doubt the ancient Egyptian healers were great observers of nature, and they understood the severity of the bites of certain snakes. This is evident from comments made in the first part of the papyrus relating to the identification of snakes and the results of the bites, where the snakes are described, along with the effects of their bites.

Identification of the snake is important because treatment often hinges on snake species and the symptoms that are presented by the patient. In this regard, the approach to treatment of snakebite is no different to what it is in today's world. The healers clearly understood which snakes had the ability to cause rapid death in the patient, which bites were easily survivable, and which bites could be survived with treatment. Furthermore, the accurately described symptoms in the manuscript concur precisely with symptoms of snakebite described in any of today's snakebite treatment protocols (see 8.5.3.1 and 8.5.3.2).

9.2.1.1 Identifying the snakes in the Brooklyn Papyrus

Aside from bite and symptom descriptions, the Egyptian names of the snakes sometimes provide clues to aid in our ability to allocate a possible or probable identification to each snake. These clues can relate to appearance or a characteristic and this method of naming is identical to the use of descriptive common names that we use to name fauna and flora today (see Table 6). Examples from the *Brooklyn Papyrus* are as follows:

The *sdb* snake, whose name means 'evil one' or 'ill-willed one' may be the Egyptian saw-scaled viper (*Echis pyramidum*) a cause of numerous deaths in humans. The *nbd* snake has a descriptive name that means 'hairdo' or 'hairstyle' and this could point to the hairy bush viper (*Atheris hispida*) whose unusual keeled scales give it a hairy appearance. The name of the *fy ntf ṯꜥw*, the blowing viper, immediately identifies it as the familiar puff adder, *Bitis arientans.* The viper with two horns, *fy ḫr dbwj*, can be aligned with both the Sahara horned viper (*Cerastes cerastes*) and the Arabian horned viper (*Cerastes gasperetti*). The name *fy šrj* relates to the size of the viper – the little viper – and this may be identified with one of the smallest vipers in the region, the Sahara sand viper (*Cerastes vipera*). The blowing snake *ḥfꜣw ntf ṯꜥw* makes a noise like a blower in a metal forge when its scales rub together and this identifies it as a snake with keeled scales such as a viper. The snake named *ḥfꜣw ꜥꜣn ꜥꜣpp* (the great snake of Apep) must be a feared snake with the ability to cause death such as the red spitting cobra, *Naja pallida.* The name *ꜥr-ꜥr* describes the rising-up action of a cobra, such as the Nubian spitting cobra (*Naja nubiae*) or any of the other species of cobra found in ancient Egypt.

It is shown in Chapter Six that it is entirely possible to attempt to identity the snakes in the first part of the *Brooklyn Papyrus* because the descriptions of the snakes and the effects of their bites are remarkably accurate (see Tables 1 to 5).

9.2.1.2 The names of the missing snakes

The first 13 paragraphs of the *Brooklyn Papyrus* are lost. However, it is possible to deduce from the extant manuscript the names of these snakes because there are references in the remaining paragraphs to snakes which are not the subjects of Paragraphs 14 to 37[257]. These references are found in the first part of the manuscript, where identified snakes are compared

[257] Paragraph 38 describes the chameleon.

to snakes that are not the subjects of Paragraphs 14 to 37; and also in the second part of the manuscript, the treatment section, where a treatment is named as being for the bite of a particular snake that is not the subject of Paragraphs 14 to 37. Sauneron was able to restore a possible nine out of the lost 13 names. However, it is possible that the manuscript may actually reveal all 13 of these snakes that may have been the subject of the lost 13 paragraphs. These are the names of snakes to which references are made (13 in total):

ka-nay (see 5.2.1.7 and 7.2.61.1)
khetwaet (khet-outet) (see 5.2.1.7, 6.4.1, and 7.2.6.1)
sekhtef of Seth (see 5.2.7.1, 7.2.18.3 and 7.2.41)
sekhtef of Horus (see 5.2.7.1, 7.2.18.3 and 7.2.41)
mesou-bedech (see 5.2.7, 5.2.22.2 and 7.2.36)
rer (see 5.2.9.2)
deb (see 5.2.24.1)
qady (see 7.2.30.2)
garousha (gerech) (see 7.2.39.1)
mady (see 7.2.41)
heby (see 7.2.50.1)
betjet (see 5.2.20.7, 7.2.102 and 7.2.105)
Apep (Apophis)[258] (see 5.2.2.2, 5.2.3, 5.2.4.3, 5.2.5.7, 5.2.10.7, 5.2.18.4, 5.2.19.16, 7.2.124.2 and 7.2.124.3)

9.2.2 Arrangement of paragraphs in the first section

A review of Tables 1 to 5 in Chapter Six suggests that there may well be a deliberate sequence in which the snakes were listed in the first part of the Papyrus. Most apparent is the consecutive grouping of the viperids (Paragraphs 18, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 31, 33 and 35) and then the elapids (Paragraphs 14, 15, 16 and 17). The elapids in these four paragraphs may possibly all be cobras. Colubrids are in Paragraphs 36 and 37.

9.2.3 Organisation of treatments and recipes

It is clear from the treatment section of the *Brooklyn Papyrus* that treatment of snakebite was well considered. Although some treatments are for general use (for the bite of any snake), there are those that specify which symptoms are to be treated with a particular prescription, and those which are for a specific species of snake.

[258] It is possible that the monstrous Apep was inspired by the African Python (*Python sebae*) (Pinch 2002:107).

The recipes tend to follow a general formula as follows: treatment for X, list of ingredients (and often their quantities), method of preparation, method of use, duration of use. Sometimes there are concurrent treatments and at other times there are successive treatments. The manner in which the snakebite treatments were used is shown in Tables 15 to 18, namely emetic treatments, treatments to be ingested, wound and body treatments, and fumigations respectively.

9.2.4 Forms of ingredients and preparation methods

In many instances the *Brooklyn Papyrus* specifies the form of the ingredient which is to be used in the treatment recipe. On the botanical side use is made of leaves, roots, seeds or fruit, resin, gum, sap, charcoal, twigs and pods (see Table 8). Occasionally the part of the plant to be used is not specified. Animal products incorporated into the treatments include blood, curds, dried hide, teeth, milk, hoof, horn, fat, lung, gall, sweat, excrement, liver, tongue, heart, and egg (see Table 9). The mineral ingredients are listed in Table 10 and carrier liquids are in Table 11. These tables list the paragraph numbers within the *Brooklyn Papyrus* in which they can be found and therefore indicate the frequency with which ingredients were used.

In numerous instances the ingredients need to be prepared in a particular form, for example: dried or fresh; and it also need to be prepared in a specific manner, for example: powdered, crushed or ground finely, mashed, made into a gruel, boiled, mixed with a carrier liquid (see Table 11 for carrier liquids), filtered or strained, heated or burned.

9.3 HOLISTIC APPROACH TO SNAKEBITE TREATMENT

The *Brooklyn Papyrus* provides a holistic approach to the treatment of snakebite in ancient Egypt. On a medical level, recipes indicate ingredients to be used as emetics, ingestible treatments and poultices or wound treatments for the snakebite victim. In addition to this, the patient was treated on a psychological level with the use of fumigations, references to mythology, incantations and invocations. Treatment was all-encompassing, taking the physical symptoms experienced by the patient into account as well as providing mental comfort on a magical level, often with the spoken word or certain magical actions.

9.4 MAGICAL APPROACH TO SNAKEBITE TREATMENT

At first glance, the *Brooklyn Papyrus* appears to have very little magical content if one judges by the incantations and references to mythology alone (see Table 14 for the location of these elements in the *Brooklyn Papyrus*). However, an in-depth consideration reveals that the manuscript may be more infused with magic than this first glimpse affords. Words, actions, many of the ingredients and the snakes themselves have links to the realms of deities and magic which were normal parts of every-day life in ancient Egypt. It would be unthinkable for ancient Egyptians to exclude the involvement of deities and magic from treatment.

9.4.1 Linking of snakes and deities

None of the deities mentioned in the Papyrus are ophidian in nature, nor do they have obvious ophidian aspects. For some reason though, a particular snake is linked to a particular deity. This leads one to question why this is so. Sometimes the link is apparent and sometimes it is not. Mostly one can only speculate and make suggestions as to the exact link in each case as, unfortunately, we cannot know what the exact connections were in the ancient Egyptian mind. The links may be related to some aspect of the snake's nature, such as venom strength, or its description, such as colour.

9.4.2 The spoken word

The recitations in the *Brooklyn Papyrus* take on several different forms. There are invocations to deities and to specific plants (the onion in Paragraph 41, the khair plant in Paragraph 90b, and the reed in Paragraph 99c) for assistance, as well as incantations incorporating references to myths in which deities were healed or ultimately victorious – thus restoring order out of chaos. In addition to these invocations and incantations are the direct addresses to the venom which is commanded to leave the body of the patient and fall to the ground.

9.4.3 Magical actions

Certain prescribed actions in the treatments must not be glossed over as being merely actions to be performed. Many actions are required for a reason that has a magical purpose and is believed to be essential for the success of the treatment. These actions include drawing of images (see 8.4.3.1), spitting (see 8.4.3.2), swallowing (see 8.4.3.3), making fumigations (see 8.5.7) and recitation of words over treatments (see 8.4.3.4).

9.4.4 The association of treatment ingredients with mythology

It is likely that a number of the ingredients used in the snakebite treatments were selected for the magical properties that they were believed to hold, and indeed some of these ingredients were important due to the roles they played in mythology. Only 25 such ingredients are discussed in Chapter Eight (8.4.4) where it was possible to find links to mythology and deities, but the number of ingredients with magical associations must, undoubtedly, be higher. The section, 8.4.4, enables an understanding of the possible reasons for the choice of some of the treatment ingredients.

9.5 A FINAL WORD ON THE *BROOKLYN PAPYRUS*

The *Brooklyn Papyrus* (47.218.48 and 48.218.85) is a unique document that may be considered as one of the major medical papyri. It has much to offer in terms of contributing to our understanding of ancient Egyptian concepts of medicine and treatment methods. The papyrus clearly shows the keen powers of observation of the ancient Egyptians, which are apparent in the descriptions of snakes and the effects of their bites. The consistent format of the treatment prescriptions shows a scientific approach that is strongly infused with the magic that was an integral part of daily life, and these combine to provide a holistic approach to the treatment of the patient.

It is shown in the notes of this thesis in Chapters Five and Seven (and brought together here in this concluding chapter) that the *Brooklyn Papyrus* is able to make contributions to the ancient Egyptian language with its variant, unusual and abbreviated spellings of numerous words.

9.6 SUMMARY OF CONTRIBUTIONS OF THE THESIS

Firstly, this thesis offers an English translation of the *Brooklyn Papyrus* (47.218.48 and 47.218.85) along with a transliteration, both of which do not exist in a complete published form up until this point.

Secondly, this thesis provides comprehensive information on snakebite treatment in ancient Egypt. This adds to the existing body of knowledge on medicine in ancient Egypt.

Thirdly, the inclusion of tables containing data allows the reader to be able to extract information regarding snakebite treatment and the ancient Egyptian pharmacopoeia without having to read through the entire Egyptian text. The tables assist with analysing patterns, such as the frequency of use of the various medicinal ingredients. The information derived from the tables, especially those that contain data on medicinal ingredients, adds to the body of knowledge of medicinal ingredients used in ancient Egypt.

Fourthly, the notes provided in Chapters Five and Seven with the translations provide opinions that sometimes concur with Sauneron's opinions, and sometimes differ. There is still scope here for developing and expanding on Sauneron's opinions and ideas.

Fifthly, the thesis provides a basis for further studies, such as: comparative studies on snakebite treatment in other areas on the ancient Near East, or snakebite treatment in other time periods, or even comparative studies on ancient snakebite treatments globally.

In consideration of the points raised in this Conclusion, the aims and objectives of this thesis have been met.

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Figure 75

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Figures 48, 65, 70, 83, 87, 92, 94, 95, 98

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Figure 88

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Figures 56, 61, 71, 73, 74, 85, 86, 91

ADDENDUM 1

UNUSUAL and UNCOMMON MEDICINAL INGREDIENTS IN THE *BROOKLYN PAPYRUS*

Unusual and uncommon ingredients

The *Brooklyn Papyrus* treatments include the use of certain ingredients that are rarely used in the extant major medical papyri,[259] and occasionally there are ingredients that do not appear in them at all. Some of these ingredients do not appear in the very comprehensive *Wörtebuch der Ägyptischen Drogennamen* of Von Deines & Grapow (1959) which lists ingredients from the medical papyri that had been translated at the time, and is a comprehensive work which has yet to be surpassed.

It must be remembered that the *Brooklyn Papyrus* had not been worked on by Sauneron when the *Wörtebuch der Ägyptischen Drogennamen* (1959) was published. On the basis of this, one could conclude that a medicinal ingredient which appears in the *Brooklyn Papyrus* that does not appear in Von Deines & Grapow (1959) may possibly be new or, at the very least, an ingredient that was not commonly used. These ingredients are as follows:

ꜣꜥm dšrt (unidentified plant)

 This '*aaam*-plant of the desert' may be a new plant ingredient as it does not appear in Von Deines & Grapow (1959). (See 7.2.96.2)

ꜣby (an unknown liquid)

 This unidentified ingredient does not appear in Von Deines & Grapow (1959) and, therefore, presumably not in any of the extant major medical papyri, so its use in the *Brooklyn Papyrus* is uncommon (see 7.2.69.3).

[259] The medical papyri listed in Von Deines & Grapow (1959) and Nunn (2002) are: *Papyrus Berlin* (3038), *Papyrus Berlin* (3027), *Papyrus Chester Beatty*, *Papyrus Carlsburg (VIII)*, *Papyrus Ebers*, *Papyrus Hearst*, *Papyrus Kahun*, *Papyrus London (10059)*, *Papyrus Leiden*, *Papyrus Edwin Smith*, *Papyri Ramesseum (III, IV, V).*

ꜣhm (unidentified plant)

 This may be a new plant ingredient as it does not appear in Von Deines & Grapow (1959). (See 7.2.136.2).

jnjw (unidentified plant)

 The only other listing of a similarly named plant in medical treatments is in the *Ebers Papyrus* – the *jnwn* plant, of unknown identity (see 7.2.22.2 and 7.2.50.2).

pwrḫt ꜥꜣ (pekhet?-of-the-donkey plant)

 This spelling in the *Brooklyn Papyrus* is most likely incorrect (see 7.2.65.4). The occurrence of this ingredient with this spelling in medical papyri is unknown, with one other similar inclusion in the *Ebers Papyrus* for an unidentified plant named *pḫt ꜥꜣ*.

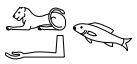
nḥḥ (sesame oil)

 There are two other occurrences of this word: one in the *Chester Beatty VI Medical Papyrus* and one on the *Berlin Ostracon 5570* where the spelling is identical to that of the *Brooklyn Papyrus*. Sesame oil is not a common ingredient in ancient Egyptian medicine, being first encountered in New Kingdom period writings, although frequently used in Coptic medicine. (See 7.2.35.2).

ḥtn (garlic – Allium sativum)

 Garlic does not appear to have been used medicinally and so its use in the *Brooklyn Papyrus* is unusual (see 7.2.94.3). It does not appear in Von Deines & Grapow (1959).

šnꜥ (chena fish)

 The absence of the name of this unidentified species of fish in Von Deines & Grapow (1959) suggests that it was probably not well known as a medicinal ingredient and therefore its appearance in a *Brooklyn Papyrus* treatment is unusual (see 5.2.44.5).

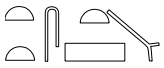
šs dḥr n štw (a strip of tortoise hide)

 This ingredient does not appear in Von Deines & Grapow (1959) and its use in the *Brooklyn Papyrus* is unusual (see 7.2.99.2 and 7.2.99.3).

wt ḥr (image-of-Horus plant)

 This may be a new plant ingredient as it does not appear in Von Deines & Grapow (1959). (See 7.2.74.2).

twt stš (image-of-Seth plant)

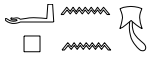
 This may be a new plant ingredient as it does not appear in Von Deines & Grapow (1959). (See 7.2.74.2 and .2.75.1).

Possible ingredient identities

The identities of a number of the *Brooklyn Papyrus* treatment ingredients are amongst those whose identity is generally agreed upon by scholars. However, Sauneron, quite correctly, left the names of certain treatment ingredients in their Egyptian form, the identities of which were not known at the time when he worked on the *Brooklyn Papyrus* in the late 1960s.

Subsequently some of these ingredients have been the subject of debate amongst scholars and some now have possible, and others probable, identities. In addition to these ingredients, there are those which Sauneron named but whose identity is now believed to be something else. The following are ingredients that were untranslated by Sauneron or ones to which he gave another identity:

ꜥpnn

 This might be a newt or a water salamander (see 7.2.113.4).

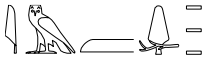
ꜥft, ꜥfꜣ

 Possible identity: *Lactuca virosa* (wild lettuce) (see 7.2.32.2).

ꜥnḫ-jmj

 Possible identity: *Vitex agnus castus* (chaste tree, monk's pepper tree) (see 7.2.32.1).

jmɜ

 Possible identity: *Maerua crassifolia* (meru tree) (see 7.2.18.6).

jnnk

 The plant known as *jnnk* is probably either a member of the *Erigeron* species (conyza) or *Thymus vulgaris* (thyme) (see 7.2.100.1).

jrtj

 This ingredient is probably *Ceratonia siliqua* (carob) or its pods (see 7.2.83.5).

pɜ-wr

 Probable identity: vinegar (see 7.2.38.2).

mjmj

 This cereal crop is probably *Triticum turgidum* (emmer wheat) (see 7.2.83.4).

mḥy

 Probable identity: *Linum usitatissimum /Linum humile* (flax, linseed) (see 7.2.21.1)

sɜ-wr

 Possible identity: melanterite/hydrous iron sulphate (see 7.2.7.4).

sꜥm

 Probable identity: *Artemesia herba alba* (white wormwood) (see 7.2.38.4).

sft, sfṯ

 This ingredient is probably fir oil (oil of *Abies cilicica*) (see 7.2.69.2).

snw pt

 The general consensus is that the *senou* plant is either *Nymphaea cerulea* (the blue lotus) or *Sinapis alba* (the mustard plant) (see 7.2.79.2).

sšpt

 This plant is probably *Cucumis melo* (the chate melon) rather than the cucumber (see 7.2.79.4).

stj

 Probable identity: yellow ochre (see 7.2.35.1).

sd pnw

 Possible identity: *Althea officianalis* (marshmallow plant) (see 7.2.18.4).

šbt

 Probable identity: *Cucumis melo* (melon) (see 7.2.58.2).

šms, šʒms

 Probable identity: *Anacyclus pyrethrum* (pellitory, Mount Atlas daisy, Spanish chamomile) (see 7.2.51.1).

ksby, ksbt

 Probable identity: *Vachellia tortilis* (umbrella thorn acacia) (see 7.2.24.3).

d(ʒ)bw

 The accepted identity of this word is ‘fig’, meaning the common fig (*Ficus carica*) (see 7.2.64.4).

djdj

 This ingredient is a mineral and its possible identity may be Nubian red ochre, red ochre or haematite (see 7.2.64.6).

ḏjꜣs

 Possible identity: *Peganum harmala* (wild rue, Syrian rue) (see 7.2.2.5).

ADDENDUM 2

ORGANISATION OF THE *BROOKLYN PAPYRUS* SNAKES INTO GROUPS

This Addendum includes a table showing my conclusions of the possible identities of the *Brooklyn Papyrus* snakes and their grouping in the first part of the Papyrus (see 6.9.5) in relation to Table III in Aufrère (2012:242).

The first column gives the family grouping according to my possible identifications in 6.9.4, Tables 1, 2, 3, 4 and 5. The second column gives the *Brooklyn Papyrus* paragraph number, while the third column provides the snakes' names. Column four gives my possible identifications of the *Brooklyn Papyrus* snakes. Column five provides the family group according to Aufrère (2012:242), based on suggested identifications of the snakes made by Sauneron (1989), Nunn (2002) and Leitz (1997).

Table19: Organisation of the Brooklyn Papyrus snakes into family groups

	Paragraph number	**Egyptian snake name**	**Possible identification according to Golding**	**Family group in Aufrère (2012:242)**
ELAPIDS	14		*Naja nubiae* *Naja pallida*	viperid
	15	*ḫfꜣw n ꜥꜣ ꜥꜣpp*	*Naja pallida*	elapid
	16	*gꜣnj*	*Walterinnesia aegyptica*, *Atractaspis microlepidota*	elapid
	17	*jḫr*	*Naja haje*	elapid
	25	*nkj*	*Naja nigricollis*	colubrid
	32	*ꜣrꜥr*	*Naja nubiae*	
	34		*Naja haje*	

	Paragraph number	Egyptian snake name	Possible identification according to Golding	Family group in Aufrère (2012:242)
VIPERIDS	18	*kɜ n ʿm*	*Cerastes gasperetti, Cerastes cerastes* (hornless variant)	viperid
	20	*šdb*	*Echis pyramidum*	colubrid
	21	*ndb*	*Atheris hispida*	colubrid
	22	*ṯj-ʿm*	*Pseudocerastes persicus fieldi*	viperid
	23	*ḥnp*	*Echis coloratus*	elapid
	24	*ḥnp dšrt*	*Macrovipera lebitina*	elapid
	26	*fy*	*Echis pyramidum* (with distinctive head markings)	viperid
	27	*fy ntf ṯɜw*	*Bitis arientans*	
	28	*fy ḥr dbwj*	*Cerastes cerastes, Cerastes gasperetti* (horned variant)	viperid
	29	*fy šrj*	*Cerastes vipera*	
	30	*fy*	*Causus resimus*	viperid
	31	*fy ṯɜw*	*Cerastes vipera* (of the coastal region)	viperid
	33	*ḫf ntf fy ṯɜw*	*Pseudocerastes persicus fieldi*	elapid
	35	*r-bḏɜḏɜ*	*Pseudocerastes persicus fieldi* (dark variant)	
COLUBRIDS	36	*sdbw*	*Psammophis schokari*	colubrid
	37		*Psammophis sibilans*	colubrid
ATRACTASPIDS	19	*ḏw-qd*	*Atractaspis engaddensis*	

ADDENDUM 3

IMAGES OF *THE BROOKLYN PAPYRUS* (47.218.48 and 47.218.85)

These images are by courtesy of the Brooklyn Museum: bequest of Theodora Wilbour, from the collection of her father, Charles Edwin Wilbour.

Figure 100: Text of page 1 and page 2

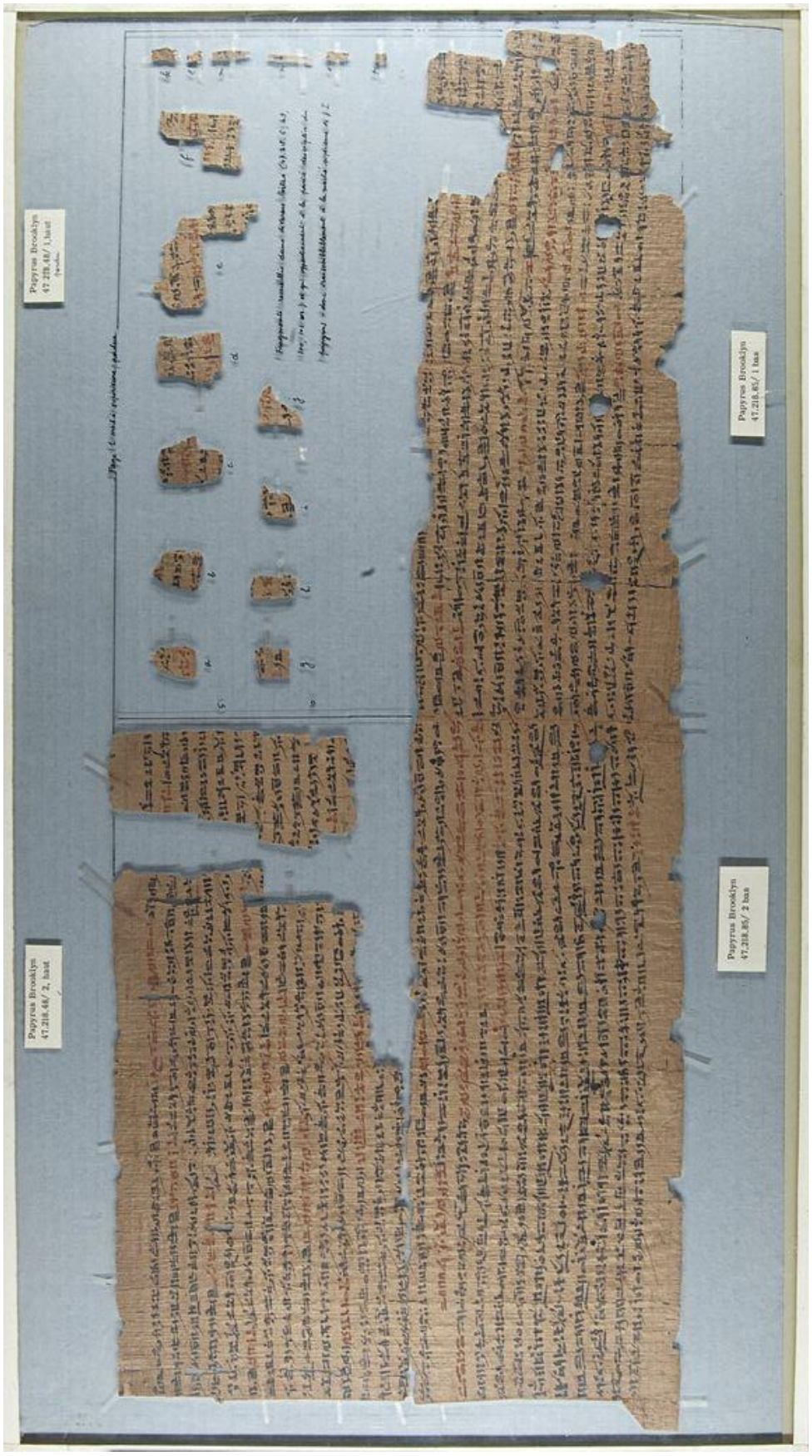


Figure 101: Text of page 3 and page 4

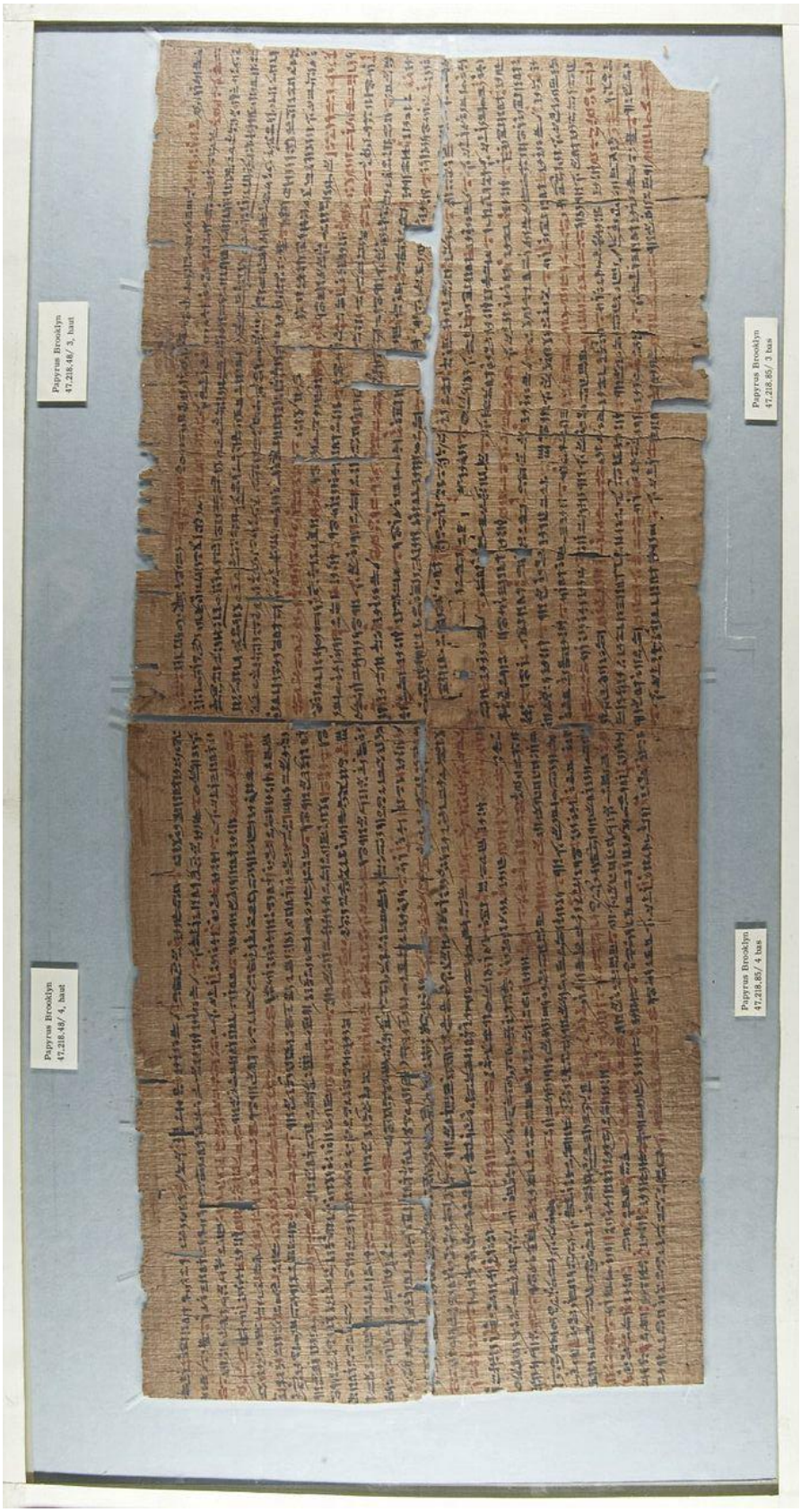


Figure 102: Text of page 5 and page 6